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19 September 1980

East Europe Report

ECONOMIC AND INDUSTRIAL AFFAIRS

No. 2043

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BRIEFS

POLISH-SOVIET AVIATION COOPERATION--In a period of three years, the joint Polish-Soviet design office developed and designed the world's first M-15 agricultural jet aircraft which has already undergone government testing in the USSR. In regard to cooperation between Polish and Soviet aviation industries, the Transportation Equipment Plants in Mielec, Swidnik and Kalisz are participating in the construction of the IL-86 aerobus which is a third-generation transport aircraft and is being produced by the Soviet aviation industry. In accordance with the agreement, Poland is to provide complete tail assemblies, engine-suspension strut assemblies, aerodynamic lift assemblies and other elements. A total of 15 tail assemblies for the IL-86 aerobus have been completed in 1980 at the Transportation Equipment Plants of the Polish Aviation Enterprises - Mielec. Another very important agreement, in which Poland is to initiate production of the light AN-28 passenger aircraft having short take-off and landing capability, was recently signed. Polish production of this aircraft will begin in 1984, and 1,200 of these aircraft will have been built for the USSR by the end of 1990. [Excerpt] [Warsaw RYNKI ZAGRANICZNE in Polish No 97, 12 Aug 80 p 8]

SOVIET-POLISH AVIATION DEVELOPMENTS--Many Polish passengers and much cargo are transported by foreign airlines which use, on long flights, only the wide-fuselage aircraft having more capacity and using half as much fuel as other aircraft. Similar aircraft may be expected on the Soviet market in 1985-1990. Up to this period, Polish domestic flights will be conducted with the currently used AN-24 aircraft, the IL-18 and TU-134 aircraft which are being gradually withdrawn from the foreign routes and the new JAK-42 aircraft whenever they are acquired. IL-62 aircraft will be used for long-range transport service, whereas the delivery of four IL-62M and five IL-86 aircraft is envisaged in 1981-1985. Therefore, the matter of equipment is one of the important airline requirements that is equal to other matters, such as the construction of the international airport at Okecie and the reconstruction and modernization of many Polish domestic airports or the expansion of technical facilities which are the worst in Europe. [Excerpt] [Warsaw TYGODNIK KULTURALNY in Polish 17 Aug 80 pp 5, 15]

CSO: 2600

NEED TO IMPROVE EFFECTIVENESS OF AGRICULTURAL EXPENDITURES

Tirana ZERI I POPULLIT in Albania 24 Jul 80 p 2

[Article by Gjon Gorishti, deputy chairman of the State Planning Commission: "Improvement of the Effectiveness of Expenditures in Agriculture"]

[Text] In the framework of the tasks assigned today for the present development of the economy and for the future, the improvement of the effectiveness of production in agriculture, as in all the other branches of material production, constitutes one of the important directions where the struggle, work and efforts of the government and economic organs must be concentrated, solving, correctly and on scientific bases, the problems that emerge in this field. In the coming five-year plan, according to preliminary calculations, the overall agricultural production is foreseen to be increased by about 41 percent, compared to that of the Sixth Five-Year Plan. With this increase and on the basis of the fact that the increase in agricultural production is expected to be provided mainly from the increase in the production of agricultural and livestock crops, the main requirement for the working collectives of the enterprises and agricultural cooperatives is to concentrate their attention and mobilization on the most complete activization possible of all the material, technical and socio-political factors that guarantee the fulfillment, one by one, of the tasks of the production plan.

Practice has shown that those agricultural units, which have fulfilled the tasks of the production plan in quantity and quality, have, at the same time, obtained great effectiveness in the use of the material base. In these conditions, the essential issue in improving effectiveness is to assure high yields, thus, rapidly progressing toward their transformation into modern units of socialist production, where the work and management will be achieved on more healthy scientific bases.

To fulfill the targets of the coming five-year plan in agriculture, as was stressed at the Eight Plenum of the Party Central Committee, it is required that science and scientific research works be expanded and executed broadly in all agricultural units. This, first of all, sets forth the necessity to rigorously execute the agro-zootechnical code and the generalization, dissemination and execution of progressive experience obtained in practice by many agricultural enterprises and cooperatives, as well as to struggle for continually reducing production costs per unit of production. These and other measures for perfecting the management and organization of work are the more important guidelines to guarantee the increase of agricultural production at high rates, on the one hand, and to use, with calculation and great effectiveness, the vigorous work and material values that constitute expenditures for production, on the other hand.

There are great reserves in agriculture for increasing its production and improving its effectiveness. There are many work brigades, agricultural units and districts which are waging a comprehensive and continuous struggle for obtaining the maximum production possible from the land on the basis of the rational utilization with high effectiveness of the technical-material base. In 1979 in Lushnje and Fier districts, for every kilogram of active substance chemical fertilizer 7 and 8.5 kilograms of wheat were produced respectively. However, this result was not obtained in Durres and Kruje districts although they have comparable conditions. The produced 5 and 6.4 kilograms respectively. Similarly, Librazhd District produced 7.2 kilograms of wheat for one kilogram of active substance fertilizer, while Skraper District produced only 4.7 kilograms of wheat.

There are many districts and agricultural units which, because of the failure to use chemical fertilizers with correct and scientific criteria, because of the failure to rely on the agro-pedological studies of the lands and because of the failure to accompany them with the activization, at the required level, of all the other factors that increase production and output, did not manage to provide correct relationships between the increase of expenditures for chemical fertilizers and the overall agricultural production. Thus, in Vlore District, expenditures for chemical fertilizers in 1979, compared to 1975, were increased by about 75 percent, while overall agricultural production was increased by only 4 percent; or, in Durres District where expenditures for chemical fertilizers were increased by 97 percent and where there was an increase of agricultural production of only 15 percent.

The analysis of the factors and roads that lead to the improvement of expenditures of agricultural production and the measures which will be taken in this field must aim at increasing the revenues for every 100 leks of production expenditures. In this regard, it is necessary to keep in mind that the improvement of the effectiveness of expenditures does not mean that the expenditures needed for fulfilling production must be limited. The problem is that, with the planned expenditures, the continual increase of agricultural and livestock production, of yields and of revenues must be made possible. In this regard, the good organization of work for the systematic monitoring of production expenditures in relation to production and revenues is of special importance.

The practice of recent years shows that, in this direction, violations have been permitted and, sometimes even important violations have been committed with consequences for the enterprises and agricultural cooperatives. In some districts and specific agricultural units there also are trends showing that, while material expenditures are increased from one year to the other, above the stipulated tasks, they are not always accompanied by an increase of agricultural production and, in certain cases, they are even accompanied by a decrease of agricultural production. Thus, while in 1975 the agricultural cooperatives in Tirana District had 37 leks of material expenditures for 100 leks of agricultural production, in 1979 they had 45 leks, and, in Shkoder District expenditures went from 28 leks in 1975 to 34 leks, and in Vlore District expenditures increased from 25 leks to 40 leks and so forth. In 1979 the agricultural cooperatives in Kruje and Fier districts did not achieve the increase of agricultural production in accordance with the plan tasks; they fulfilled production expenditures by 101 percent and 108 percent respectively and so forth.

The great possibilities of agricultural cooperatives for improving the effectiveness of production are also evident in the fact that, between the districts with comparable conditions, there are different levels of revenues compared to the material expenditures that are made. Thus, while Korce and Berat districts obtained 227 and 267 leks of revenues respectively for 100 leks of expenditures, Kruje and Lushnje districts obtained 205 and 216 leks respectively.

The continual analysis of the progress made in these fields by agricultural units and districts and the determining and execution of the technical and organizational measures for fulfilling the production tasks with the expenditures that are earmarked, for carrying out a bitter struggle for applying regulations, for the proper handling of yields and for the elimination of damages, especially during the grain harvesting and threshing campaigns and for improving the quality of agricultural and livestock products and so forth are tasks that require a greater concern on the part of all agricultural units. An important role in this field must be played by the planning and finance organs in the districts and agricultural units.

The high rates that must be achieved in the development of agriculture and the effectiveness of production are linked with the use of live labor in accordance with the correct rules of work and with the rational use of chemical and organic fertilizers and of the other material expenditures, harmonizing them with all the requirements of the agro-zootechnical Code that guarantee the obtaining of the planned yields. The task is assigned on the basis of deep analyses to discover not only the shortcomings and weaknesses in the practice of the organization and management of production, but also to determine the most effective measures for eliminating them, in order that production expenditures will give the results required for increasing production and yields.

In this field, it is required that, in every production unit and area, the needs for expenditures, live labor and materialized work, must be calculated and planned as correctly as possible and on the basis of established norms, taking into consideration the tasks stipulated for increasing production. Also, it is necessary that, both in the process of the drafting of the plan and in the process of its fulfillment, correct relationships be maintained between the factors that determine the effectiveness of production expenditures, especially the relationships between production and the working people, between norms for accumulation and consumption, between net revenues and production expenditures and between the investments used in the production sphere and those used in the non-productive sphere and so forth. These matters and others that emerge are objects of thorough studies and discussions in which technical and economic ideas must steep in agricultural units, making them the problems of the working collectives; the concrete ways and measures for achieving the best results possible must be determined.

For this, it is necessary that specialists and cadres in agricultural units must increase their attention and care not only during the process of the drafting of the plan, but also and especially during the fulfillment of stipulated tasks, since, often, in this field, the most accentuated weaknesses and shortcomings are observed. Specific tasks are assigned to the economists in the planning and finance sectors so that they will further delve into and better connect themselves with these problems, in order to respond to the tasks set forth by the Eight Plenum of the Party Central Committee. They must face these matters with more expanded studies and analyses and, time after time, they must make them the problems of the working collectives, expressing themselves more loudly not only in regard to the situation, but also in regard to the roads which they must take, because, this is the way to further improve their role in the planned management of the economy.

The most recent plenums of the party Central Committee assigned important tasks for improving the effectiveness of social production in the various branches of the economy. The assurance of high profitability, as the main road to increase socialist accumulation and to maintain high rates in the development of the economy in our country makes it necessary for all the links of the economy to thoroughly understand the party recommendation that the plan is not production alone, but also yields, cost, quality and all the other factors that make it possible to fulfill the production tasks with as few expenditures as possible, in order to further improve their economic effectiveness.

9150
CSO: 2100

ALBANIA

OVERSPENDING BY ENTERPRISES CRITICIZED BY BANK DIRECTOR

Tirana ZERI I POPULLIT in Albanian 28 Jun 80 p 3

[Article by Kostaq Postoli, director general of the State Bank: "Strengthening Monetary Circulation Requires Rythmic Fulfillment of Planned Tasks"]

[Text] In 1979 and in the first four months of this year, several improvements were accomplished in the field of monetary circulation. A good rapport was maintained among various indicators related to the demands of the economic law of monetary circulation. The circulation of goods by cash in 1979 increased 3.6 percent. The domestic trade enterprises fulfilled the plan for goods circulation nearly 100 percent in the four month period as well.

The work of financial and bank organs has its own influence on these fine results. However, analyzing this work under the light of the materials of the Seventh Plenum of the Party Central Committee and the recommendations of Comrade Enver Hoxha, these achievements stimulate us to move on ahead, to improve our work further and to make the bank a strong organ of control by means of the lek over the economic and financial activity of agricultural enterprises and cooperatives. The goal is to increase production and accumulation, to strengthen the savings system and to improve the effectiveness of spending.

The annual deficit last year in the circulation of goods at commercial enterprises in such districts as Berat, Tepelene, etc., represents only a one- to two-day turnover. At Tropoje, however, the plan was underfulfilled by only 77,000 leks, or by three to four hours work in the trade network. This indicates a lack of specific knowledge of the situation, no operational following of tasks, poor discipline and lack of responsibility in fulfillment of the plan's indicators. The district branches of the State Bank daily follow the dianamic of the fulfillment of goods circulation by cash, they often inspect the condition of goods in warehouses and in circulation, they uncover shortcomings and deficiencies in the organization of the work for the distribution of goods, etc. However, these phenomena are but noted and are not used properly to have an effective influence on the fulfillment of planned tasks.

It is a fact that a good part of the deficits in the implementation of contracts has been created by intradistrict trade between producing enterprises and agricultural cooperatives. This indicates that the influence and assistance of financial sections and bank branches have been inadequate. Moreover, when an accounting is demanded on the fulfillment of contracts, deficits are immediately pointed out by other districts, while the deficits created by agricultural enterprises or cooperatives within the same district are passed over superficially, tacitly and with justification. This is wrong. The financiers should not remain indifferent when they spot shortcomings and weaknesses but should study and analyze them, bring out the causes, specify the steps and ways to correct them and point them out in time to the district party and government organs.

In cooperation with sections of the executive committee of the district people's council and the commercial enterprises, the State Bank should make better and more effective use of the confrontation method between producing enterprises within and without the district, in conjunction with the government organs and bank branches of other districts, to follow production fulfillment (in terms of quantity, assortment and quality) and its distribution to consumer enterprises. This cooperation will become stronger especially in conjunction with the study of the people's purchasing power for each region and for the distribution and redistribution of stocks of goods consistent with it. The district branches of the State Bank have made analyses of regional purchasing power, however these should be put to better use by the commercial enterprises, taking measures for a more accurate distribution and redistribution of stocks of goods, which will also have an effect on the accomplishment of the goods circulation plan. We say this because the stocks of goods planned by a number of commercial enterprises are not detailed for each unit and as a result their distribution is not carried out with rigid discipline and surplus goods exist in some areas at a time when they are lacking in others. Likewise, to achieve good results in fulfilling the goods circulation plan, steps need to be taken to accomplish the production plan tasks and to carry out contracts. Otherwise, the goods circulation plan will not be fulfilled, the needs of the people will not be met properly and, as a consequence, irregularities are created in monetary circulation.

Problems also exist in fulfilling the goods circulation plan at agricultural cooperatives. Such districts as Tirana, Berat, Gjirokaster, Lushnja, etc. had the same level of goods circulation at agricultural cooperatives in 1979 as in 1978, even though the wage fund increased. The plan was fulfilled 92.4 percent in the first four months of this year. With the exception of Korca and Mirdita districts, other districts had considerable deficits, especially Mat, Elbasan, Shkoder, Gjirokaster, Tepelene, Vlore, Lezhe, etc. In this direction, the financial and banking organs are not sufficiently concerned or involved, and the necessary attention is not being paid to the accomplishment of tasks involving agricultural and animal products which are destined for sale to members, as well as to the implementation of government resolutions that members be supplied in keeping with production plan fulfillment. Here are a few facts. The districts of

Tirana, Kukes and Kruja last year produced the following percentages of vegetables, potatoes and milk, respectively: 105, 107 and 85 percent, while members of agricultural cooperatives were furnished by these districts 28, 4 and 24 percent, respectively. This shows that among certain leaders of agricultural cooperatives there is a lack of proper appreciation for these matters, neglect, lack of responsibility and a breach of the plan's discipline. The financial and banking organs have not concentrated on this problem as they should, following it cooperative by cooperative to correct and adjust the implementation of the tasks of the plan and those of the 1967 Declaration of the Party Central Committee and Council of Mininsters. The executive committees of people's councils and districts and the Ministry of Agriculture need to handle these problems better.

Failure to obtain the planned revenues from commerce, services and savings affects the growth of money in circulation. It is therefore necessary for the financial and banking organs to follow step by step the fulfillment of the plan's tasks by the various sectors of the economy and to struggle to preserve and improve the proportions specified in the plan. A greater effort can be made especially in the districts of Fier, Kruja, Lushnja, Permet, Puke, etc. Possibilities have existed in these districts to accomplish the plan's tasks for covering the buying power of the population better through the circulation of goods, services and increased savings.

This continues to be a problem in 1980. Buying power exists so, therefore, all possibilities exist for accomplishing the plan. However, the results for the first four months of this year in some respects indicate that things are not going well. At several commercial enterprises and at the agricultural cooperatives, deficits have been created and have led, in several districts, to an increase in the amount of money in circulation over the plan. This indicates that the state organs, the district economic organs and the financial and banking organs have not done a good job in tracking production accomplishments, contract implementation and work organization at the commercial enterprises and agricultural cooperatives.

During this four-month period several districts performed well, followed the accomplishment of production tasks and the implementation of contracts more closely, organized the distribution and redistribution of merchandise in the commercial network better and, as a result, achieved fine results. In April the majority of districts, such as Elbasan, Gramsh, Korce, Kruja, Lezhe, Lushnja, Pogradec, Puke, Tepelena and Tirana, achieved and surpassed the plan for goods circulation by cash, reducing part of the first quarter deficits, while such districts as Vlore, Fier, Mirdita, Diber, etc., did not fulfill the goods circulation plan.

Overspending on wages and maintenance of a larger work force than planned and unjustified by production continue to be problems. In 1979 several enterprises in such districts as Tirana, Fier, Elbasan, Tepelena, Kukes, etc., ended up overspending. Regarding the maintenance of a larger work force than planned, improvements were made as a result of the proper understanding and reinforcement of bank control. However, at the end of the year there were quite a few workers over the plan and 268 of them were not justified by output. This means that the demand to implement the plan must be further strengthened. Any concession in this direction carries dangerous consequences because buying power not covered by production is created.

Enterprises in such districts as Tirana, Durres, Elbasan, Vlore, Lushnje and Mat have had overspending on wages this year as well. Some of them likewise maintained a larger work force than planned which was justified by output. However, these enterprises and especially the executive committees of the district people's councils of Berat, Durres, Korce, Shkoder, Tirana, etc. should pay greater attention to this problem, with the goal that the enterprise accomplish the tasks of the production plan with the planned work force and wage fund.

The problems of monetary circulation constitute significant aspects of the implementation of the party's economic and financial policy. They have a profound political, ideological and economic content. Therefore, treating these problems as such, we will struggle and take measures to increase our influence further for the optimum accomplishment of production plan tasks, this being closely connected with the circulation of goods, to strengthen our socialist economy further.

5658
CSO: 2100

PRESENT, LONG-RANGE PROSPECTS FOR ELECTRONICS INDUSTRY

Tirana ZERI I POPULLIT in Albanian 5 Jul 80 p 3

[Article by Hasan Mucostepa, technical sciences candidate: "Present and Long-Range Problems of Electronics Development"]

[Text] Electronics in our country has achieved a number of successes under the party's continuous attention. Two years following the full electrification of the country on 23 October 1973, the extension of telephone service to all villages was completed. The majority of communications lines has been switched over from wooden to concrete poles and quite a few of them are crowded with high-frequency equipment. In addition to landlines and cables, communications has been established via radio, radio relay and Telex. A complete communications system has been established in the highway, railroad, sea and air transportation networks. The railroad communications lines alone are longer than all the lines which the entire country had in 1950.

Radio and television broadcasting have undergone tremendous development. Radiated power has increased several million times over and a very large number of transmitting stations exists. Suffice it to mention that the electrical energy required to supply radiostations today is greater than all electricity produced in our country in 1950.

Along with communications and radio and television broadcasting, electronics has found application in almost all branches of our economy. The establishment of production sectors for spare parts and electronic devices played an important role in its development. Thus, the radio and television plants, the post and telegraph plant and the communications and electromedical plants built after the 1960's, which grew and expanded very quickly, increased the quantity and improved the quality of their products and have now become a powerful base for the rapid development of electronics.

The electronics industry, although young, has successfully accomplished its assigned tasks, producing communications spare parts and equipment, widely used electronic appliances and various electronic devices for industry and health. The radio and television plant, from the simple assembly of radios, television sets, amplifiers, recorders, stabilizers, etc., has proceeded to the production of many components, thus reducing the range of imported elements. The post and telegraph plant currently produces about 60 percent of the spare parts requirements for communications equipment and is working to produce 95 percent of these parts in the future. The communications and electromedical plants in Tirana have also achieved successes.

However, despite the accomplishments in this field, problems still exist which demand solutions. The party has requested that electronics be extended more widely and inserted more deeply into quite a few branches of the economy because automation and the application of electronics to production processes leads to an easing of manual labor, reduction in the consumption of raw and secondary materials, growth in productivity and conservation of electrical energy. Therefore, as Comrade Enver Hoxha stressed at the Eighth Plenum of the Albanian Workers' Party Central Committee, specialists, innovators and other workers must constantly ask themselves the question: Is what we are doing the best, the most effective and suited to the economic and social needs and capabilities of our country?

To implement this request, the specialists and workers who work in the various fields of study, production and application of electronics, among other things, are faced with several problems in need of solution, such as: determination of the array of electronic devices, instruments, appliancesand systems which can be produced domestically; specification of the production line and the way to produce these devices and appliances.

Organized consultations reached the conclusion to give precedence to the domestic production of electronic equipment for industry. The possibilities exist to produce electronic equipment for automatic weighing, siganling, remote control and protection, measurement and regulation of various parameters in industry, equipment for geophysical research, for the diagnosis and treatment of diseases, for the automation of transportation, command of production-line machinery, instruments for product quality control, etc. Possibilities also exist for the further expansion of the production of equipment for radio and multichannel communications, computer technology, electronic consumer appliances such as radios and television sets, antennas, tuners, amplifiers, recorders, etc.

In specifying the line of production of this equipment, we should keep in mind the party's recommendation that the simpler and more widely used equipment should be produced initially, and then gradually the more complex ones.

Success has been achieved in the production of such auxiliary elements as casettes, tapes, printed circuits, various metal and plastic parts, keys, buttons, contacts, etc., but, keeping in mind the possibilities and significance which these elements have in reducing imports, much remains to be done.

Satisfactory results have also been attained in the partial production of passive elements. The production of transformers, throttles and various inductive coils has begun at the radio and television plant, the electromedical plant has experimented with the production of resistors and is continuing with the production of paper condensors, while the post, telegraph and communications plant has produced and experimented with quite a few other elements. Since the passive and auxiliary elements in every electronic unit comprise over 90 percent of all component elements, the complete production of these elements locally requires the devotion of greater attention to it.

Within this framework, it is necessary to strengthen cooperation between plants of an electronic profile and those of a mechanical and electromechanical profile, to increase attention to fine and detailed mechanics, to intensify study, research and experimental work and to form a cross-section within the group of electronics plants.

TheThe method of producing electronic equipment in support of the active element also holds special significance. Two groups of active elements currently exist: vacuum and semiconductor. Included in the first group are electron tubes, while in the second are transistors and integrated circuits. Integrated circuitry marked the beginning of a new evolution in electronics because it moved from the production of specific active elements to the production of complex electronic diagrams which are formed by the uniting of active and passive elements.

Since electron tubes, transistors and integrated circuits have coexisted for a relatively long time, a discussion of their level of usage and, consequently, the manner of producing electronic equipment is a current problem.

Following current trends in electronics development, we think that we should avoid producing and importing electronic equipment with vacuum tubes, with the exception of instances when their use is still essential. This is for several reasons. The production of widely used electron tubes is on the decline and at present many are no longer produced. At the same time, their price has been increasing. Currently there are electron tubes with are priced 2- to 4-times higher than transistors and 1.5- to 2.5-times higher than frequently used integrated circuits. Besides this, the electronic equipment and devices using tubes have greater energy consumption than do similar units built with transistors or integrated circuits.

It is also necessary to discuss ways to produce electronic equipment based on the degree of use of transistors and integrated circuits. The use of schemes based on integrated circuits has a number of advantages: lower cost, smaller dimensions, greater stability on the job, less energy consumption and lower cost for planning, production and maintenance.

All possibilities exist for us to develop electronics at a faster pace. The party encourages and supports the introduction of innovation in production in this field as well, and our specialists and workers have now acquired a rich experience to carry the work further along.

5658
CSO: 2100

CURRENT, FUTURE USE OF PHOTOGRAMMETRY IN SERVICE OF ECONOMY

Tirana BASHKIMI in Albanian 4 Aug 80 p 1

[Article: "Stereophotogrammetry in the Service of the Economy"]

[Excerpts] Two readers from Vlore district have asked us what stereophotogrammetry is and how this method helps to solve a number of complicated problems in various sciences. Engineer Agim Kaba from the geology and geodesy enterprise in Tirana gave the editor of our newspaper, Pali Koxhioni, a reply to these questions.

Before the liberation of our country, there was no talk about the science of photogrammetry and geodesy. After the liberation, with the concern of the party, the science of photogrammetry and geodesy, just like all other branches, was raised to higher levels and it confronted and resolved problems which were very important for the economy and for the defense of the country.

Land stereophotogrammetry was used for the first time in our country in the geology and geodesy enterprise in 1974. With the aid of land stereophotogrammetry, topographic maps of various scales (1:500 to 1:25,000) were drawn up. This method has high accuracy and is widely used, especially in mountain areas and in difficult and very difficult terrains, and has great economic efficiency compared to other methods.

Prospects for the development of land stereophotogrammetry are great. All the photographic material dealing with the terrain is processed in laboratories equipped with modern apparatus. In addition to the contribution which this method makes to the study and design of hydroelectric power plants, railroads and other construction projects and geological projects, it opens broad prospects for use in other areas.

In 1976, experiments were made on the use of this method in studies on the protection of cultural monuments. The results were satisfactory. Work should be continued and further expanded in this sector. From 1978 to the present, experiments have been going on in regard to the use of this method for the accurate measurement and detection of defects in various engineering constructions.

Land stereophotogrammetry is a rather new branch of our science and, therefore, our cadres have the obligation to promote it in the service of our socialist economy and of the defense of the country.

CSO: 2100

LER COMMENTS ON QUALITATIVE CHANGES IN PLANNED ECONOMY

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[Article by Engr Leopold Ler, CSc, CSSR Minister of Finance and chairman of the Government Committee on Planned Management of the National Economy]

[Text] The second half of the 1970's marked the beginning of a new phase of our national economy. We discovered new phenomena and factors greatly affecting the conditions of economic growth which qualitatively differ from previous conditions. We are also dealing with the entire complex of changes affecting the entire international economy from which we are not and cannot remain isolated. I have in mind not only the ever increasing prices of raw materials, fuel and energy as well as other items of our exports, but also the overall changes in the system of the international division of labor, the development of the integration processes, the key position of scientific and technical progress, etc.

The new economic situation requires a change in the existing approach to the problems of our development and an immediate transition to utilizing intensive factors of growth. The new economic situation requires that we carry out the strategic economic policy of our party. Keeping in mind the results of the Fifth Five-Year Plan and the tasks of the Sixth Five-Year Plan, our economic situation was described in the main report delivered at the 15th CPCZ Congress by Comrade Husak, secretary general of the Central Committee, in the following words: "With the Sixth Five-Year Plan, we are entering a new phase in which our economy will develop under more demanding internal and external economic conditions. The extensive sources of growth have for all practical purposes been used up and the increased tasks must be met with the same number--and in certain instances even with a lower number--of workers and with a slower increase in the use of energy and raw materials. The order of the day is to produce effectively and work well. This is the main prerequisite for the fulfillment of the Sixth Five-Year Plan and the growth in the standard of living."

Securing economic development during the present stage of building a developed socialist society will be the result of our ability to formulate our system of planned management ex ante, i. e., to foresee the requirements of the future and not to be satisfied with the use of those features that stem from the need to solve the already existing situation. Our effort is closely linked to the basic content of the party's strategic line, to the effort to achieve the highest effectiveness and quality of social labor, and to our ability to strengthen the role of intensive factors in the growth of our national economy.

In respect to the questions related to the differences between intensive and extensive factors, there can exist different theoretical and practical approaches. However, as far as the overall approach to the problem of economic growth is concerned, we can see total agreement concerning the differentiation between the quantitative and qualitative method of expanded production. The differentiation between the two basic sources of economic development can be found in Karl Marx: "Production appears at shorter or longer intervals. If we look at the problem from a social point of view, we see production in an expanded scope. If the area of production is enlarged we speak about expanded extensive production; when more effective use of production means are used, we speak about expanded intensive production." We can also find in Marx the determination of the basic factor of intensive growth: scientific and technical progress. Science and technology gave functioning capital the ability to grow independently of capital's impact. It is the scientific and technical progress introduced in production which is a prerequisite and indispensable condition for the extensive growth of the economy. Marx even theroretically anticipated that in the process of expanded production (at his time based primarily on extensive and quantitative growth) there would be a reversal when further economic development became independent of capital accumulation and was primarily based on scientific and technical progress and other sources of intensive growth. Economic theory concludes that growth in its inception is primarily the result of the operation of extensive factors and only afterward do extensive and intensive factors become interrelated while intensive factors become more and more important.

The economic policy of the CPCZ since 1945 has been based on these basic scientific notions of the Marxist-Leninist economy. And the CPCZ has been applying these notions in practice. This scientific thesis was translated by K. Gottwald into an absolutely clear directive of economic policy in the determination of the basic principles of socialist construction in the CSR: K. Gottwald emphasized that we had to fulfill the First Five-Year Plan in all branches of our economy not only quantitatively but also qualitatively, that it was necessary to discover and mobilize hidden resources of our economy in order for our nationalized industry to produce more, better and cheaper than had been the case under the capitalist system. This thrust of our economic policy has lost none of its validity, rather the contrary.

Our party gradually analyzed the economic results achieved and the direction of our future steps. A significant role was played by the February 1957 plenum of the CPCZ Central Committee which for the first time openly tackled the question of effectiveness. Even under a favorable dynamic development of the national economy, we encountered disruptions in certain basic economic proportions which functioned as a barrier against the influence of intensive factors. Material costs, labor productivity and its relationship to wages, etc., developed in a very favorable way. We encountered strong tension between resources and needs. The above-mentioned plenum of the CPCZ Central Committee decided on the following tasks: to overcome the difficulties by adopting complex measures in all branches of production and in planned management, to secure in a planned way the growth and structure of industrial production with special emphasis on the accelerated development of the fuel, energy, metallurgical and chemical base, to strengthen the role of long-range planning, to evaluate the effectiveness of the creation of large economic units operating on the basis of enterprise khozraschot, and to use value categories in the management of the national economy.

The breakdown of these ideas into specifics was done correctly. The Third Five-Year Plan was, however, incorrect in its overall structure. Added to this difficulty were certain external circumstances affecting the economic development of our country. Hence, it was necessary to manage our national economy by completely different means in order to quickly deal with the economic problems we faced.

After mastering this task, the Czechoslovak Community Party once again dealt with the question of economic management at the plenum in January 1965. This resulted in the adoption of directives whose aim was to improve the system of planned management. However, these directives were spelled out at a time when rightwing forces were in the ascendancy and when correct ideas were misused.

For this reason, the May plenum in 1969 charged in the Realization Directive the new party leadership with the task of repairing the disrupted system of planned management and to bring the economic policy of our party back to Leninist principles. The resolutions of the 14th and 15th CPCZ congresses set the directions for further policy. On their bases we achieved, during the 1970's, good results and realized the basic goal of the strategic line of socioeconomic development and building of the material-technical base of a socialist society, i. e., the securing of dynamic development of the national economy and strengthening and developing the standard of living. Between 1971 and 1975, the national income grew at an annual rate of 5.6 percent and social productivity of labor, 4.6 percent. Between 1976 and 1979 we further strengthened, under relatively slower rates of growth of our national economic aggregates, an economic potential and continued in our economic development: the average annual growth of the national income was approximately 3.8 percent.

Certain structural changes showed positive impact in the first 4 years of the Sixth Five-Year Plan: we have further strengthened the role of the engineering and chemical industries and of those productions which depend on domestic raw materials, and we have paid greater attention to long-range developmental programs in these areas. The integration of our national economic complex in the international division of labor has improved; this applies primarily to the process of socialist economic integration. We are succeeding in realizing the resolutions of the 15th CPCZ Congress in the areas of material and cultural level of our citizens.

The positive results so far achieved must be really appreciated because they were materialized under demanding economic conditions. The communist party, however, not only analyzes the development of the national economy from the point of view of positive aspects--which are undoubtedly here--but also systematically examines the factors of economic growth. The overall economic development of the Sixth Five-Year Plan, especially the creation of material resources, is slowing down and the securing of this development is accompanied by tension within certain important sectors of our economy. A report submitted by the presidium of the CPCZ Central Committee to the 14th plenum stated: "The basic cause for a lower national income is the insufficient level of the overall effectiveness of the production process..our economic activity in both the area of the formation of the national economic plan and in its realization has not been able to adjust itself to new and more demanding conditions."

Czechoslovakia's position in the international division of labor and the development of external economic conditions, which experienced a basic change during the 1970's, significantly affect the economic development of our country. When the world energy crisis started, we spent annually 4.5 percent of our hard currency to purchase crude oil and natural gas. However, in 1980 this item represents 15 percent of our balance of payment and we estimate that this will increase to 25 percent during the next Five-Year Plan. We have not yet been able to deal with the problem of changes between export and import prices. Thus while during the Fifth Five-Year Plan we could use the entire gain realized from the final product for meeting domestic needs--and half of that for the growth of consumption--during the Sixth Five-Year Plan we must set aside 30 to 40 percent of this gain to meet the accelerated rise in import prices; and now the figure is already 50 percent.

The possibilities of further economic growth of the CSSR now only rest in a consistent utilization of intensive factors and the application of such means as the development of scientific and technical revolution, the introduction of modern methods of management, and stronger participation in international socialist integration. Especially, the full utilization of the possibilities of scientific-technical progress and its accelerated and broad application in production is the only possible alternative for further development of our socialist economy.

On the basis of a decision made by the party leadership, a complex experiment in the management of effectiveness and quality, which has already been carried out in 17 VHJ's, was introduced on 1 January 1978. At the same time, work started on a uniform system of measures which would qualitatively move the system of planned management into a new direction in order to better meet the demanding economic conditions of the 1980's.

It is necessary to consider that during the 1980's, we will achieve lower rates of growth than was the case in the past. At the same time, we must greatly improve the level of utilization of energy, raw materials and other materials. It will be necessary to reevaluate a number of values and their priorities in order to secure the functioning of our economy. In this connection, there could appear voices of economic pessimism or ideas of so-called zero growth. However, it is not the shortage of energy, raw materials or manpower which act as a barrier to our economic development. Rather, the barrier is insufficient effectiveness in the evaluation of these factors. The overcoming of this obstacle is a prerequisite for a guarantee of the successful and steady economic growth of our country.

It is necessary to change economic thinking in order to replace the existing parameters and criteria, which played a positive role for the past 30 years, by more demanding ones. We must create an economic climate which will permit all economic levels of management, which will decide on and approve future measures, exposing them to real pressure, forcing them to greatly improve effectiveness.

The new system of measures aimed at improving planned management in the period after 1980, adopted by the presidium of the CPCZ Central Committee and the CSSR Government, is a long-term document whose provisions will be carried out during the next Five-Year Plan and possibly during the one that will follow. It consists of a series of measures deeply affecting the existing management system which will gradually be introduced on the basis of new situations. Viewed from this angle, it is necessary to emphasize that the adopted system of measures is not a "closed" one, but that it is an appeal addressed to all involved members of our society possessing knowledge and experience to step forward with new ideas.

The uniform planned management of the national economy includes planning the national economy in the form of creating or directing the national economic proportions ex ante, management of economic subjects from a center and, last but not least, organization of the production structure of the national economy.

The plan of development of the national economy occupies a key position in the economic mechanism of a socialist society. The increased demands put on the plan and the entire economic mechanism are related to the growth of volume of production, the complexity and interdependence of economic relations and the progress of the scientific and technical revolution. All management and planning work must, under existing conditions, aim more and more at increased production efficiency and quality, at higher final national economic results and at better satisfaction of growing social and personal needs.

At the same time, it is primarily up to the plan to orient our system toward rational utilization of the resources of the national economy, utilization of intensive factors of growth and broad application of scientific and technical ideas in production. In this respect, the plan's improved quality and its growing role in the economic mechanism are increasing. Another result is the strengthening of the plan's long-term prospects, proper balancing procedure and a well-thought out approach during the plan's drafting stage, and the strengthening of the plan's norm-setting base.

The adopted system of measures, while permitting a uniform system of plans, is based on the fact that the plan functions as the main instrument for realizing the economic and social policy of the CPCZ. All measures toward improving the plan aim at more effective use of intensive growth factors by effecting the most important qualitative and structural factors of changes based on applying the results of scientific and technical development. The main task in regard to the development of the national economy--structural changes, participation in the international division of labor, scientific and technical development--can be evaluated and realized only in the long run and in a planned way.

The new system eliminates the shortsighted approach to planning and management and the existing practice of determining tasks with the help of intra-annual indices of development of individual indicators on the basis of results of the previous economic year. The five-year plan becomes a really basic form of planning and a basis for organizing economic activity at all management levels. Within the framework of the five-year plan are determined the main tasks, limits and economic conditions for specific years which must be consistently assigned to the appropriate levels of management, namely, to the VHJ's or enterprises.

At the present stage we are working on the final state programs which incorporate the basic structural changes of the economy and which will be oriented toward the most important tasks of scientific and technical development and toward measures and actions for integration within the CEMA.

The main role of annual plans is to secure the goals and tasks of the five-year plan. The point of departure for the drafting of the plans will be the tasks, limits, instruments of the material incentive and other economic conditions determined by the five-year plan.

Annual plans must react operationally to changing domestic and external conditions, to new phenomena and needs during the course of the five-year plan. Also, the method of control and evaluation of the plan is being changed. We are primarily interested in fulfilling the five-year plan right from its inception and in control and evaluation of the fulfillment of individual annual plans. The primary criterion of control and evaluation will be fulfillment of the specified tasks, especially in regard to the growth of effectiveness, quality and export efficiency and in regard to achieving results from the scientific and technical revolution.

In a certain sense, it is a fact that the five-year plan is decided upon at the top, at a center, and that the annual plans are put together by lower-level organizations. In order to strengthen this trend, we must increase the interdependence of tasks and instruments of material incentive in such a way as to make advantageous the adoption of more challenging tasks, especially those relating to higher quality, in the annual plan and punish failure to meet these tasks. On the interdependence of tasks and the material incentive will depend the stimulation of operational plans which are seen as a decisive form for the participation of the working people in the drafting of the plan. In connection with these measures, directives concerning the drafting of annual plans in the old form are being discarded.

The improvement of the plan depends on improved planning, management and organization of the material relations in the national economy. This is, for all practical purposes, the basic prerequisite for improving internal relations and for the harmony of the plan. In order to achieve that, we have adopted measures aimed at creating a finished system of material and price balance sheets in the first place of structural and marketing balances, and improving the system of balances at all levels of management. Some measures also have as their goal the strengthening of supplier-customer relations during the drafting and realization of the plan and the stipulation of these relations in written contracts.

The number of material balance sheets for the Seventh Five-Year Plan is being increased in the state plan to 343. At the level of intermediate organs, the balance sheets will have 120 items and at the level of the VHJ's, 230 items. The highest number of balance sheets will be in the engineering industry where we even anticipate balance sheets for complete plant equipment, including important complete products. In all, the balance sheets to be used in the state plan will be used for more than half of industrial production.

The plan will be clearly oriented toward the qualitative aspects of the reproduction process. The system of indicators also expresses the tasks in increased effectiveness, technical level and quality of products and meeting the needs of customers. The fulfillment of the plan and achieved results can no longer be evaluated merely on the basis of gross production. To regulate the basic wage and to calculate labor productivity, we will use an indicator of net production, namely, actual output. The fact that this indicator does not include material costs is in line with today's needs for maximum savings in the use of raw materials and materials, higher effectiveness of production funds, etc. Savings on materials will be significantly reflected in the fulfillment of the indicator of output (via profit growth). For example, in industry 1 percent saved on material will result in a 3-percent increase in output. In a similar way, we also will see increased value of technically progressive products and products listed in the first quality group.

Another indicator aimed at the qualitative aspect of production, namely, the returnability on funds spent on machinery, equipment, reserves and buildings, is the rentability of production funds. This means that individual economic units must make sure that the growth in labor productivity will be accompanied by the reduction in materials and funds needed for production.

The system of measures also makes more precise qualitative parameters for the realization of tasks in research and development, price limits of new products, growth of per kilogram prices of imported products, etc. The establishment of the indices of effectiveness, such as labor productivity, cost development, the use of basic means, etc., must be preceded by a thorough analysis of factors influencing development. At the same time, it is necessary to keep in mind that this is not a case of exchanging one indicator for another but a change in the approach toward decisionmaking, a change in economic thinking where effectiveness and quality must be the point of departure.

Khozraschot relations are a demonstration of a relative economic independence of enterprises or VHJ's, stemming from the achieved level of production forces reflected in a given stage of development of social division of labor.

Khozraschot is a basic method of economic management securing planned incorporation of production units into the entire complex of the national economy and creating prerequisites for multifaceted development of initiative and relative economic independence of these units. It is a well-rounded system of economic relations between society and economic subjects and among the latter, based on planned utilization of commodity-money relations with the goal of stimulating economic effectiveness of production in accordance with the tasks set in the national economic plan. Recently, in most of the CEMA member countries the system of khozraschot relations is being extended and improved in connection with the improved system of planned management and the transition toward the utilization of intensive growth factors.

The system of measures includes principles, regulations and instruments aimed at increased effectiveness of khozraschot as a whole and its individual elements in order to ensure the growth of effectiveness and quality. Responsibility of individual VHJ's and enterprises for economic results is being increased. Favorable and unfavorable results of activity will more than before affect their evaluation, material incentive and financial economy.

Other economic methods of planned management, namely, credit and financial policy, pricing mechanism, and the wage system will work in a similar way.

The basis for improved effectiveness of khozraschot is long-range planning where the basic scope and instruments for the functioning of khozraschot are determined within the framework of a five-year plan. This will be manifested in increased dependence of personal and collective incentive not only on results achieved in the production sphere, but also in relation to results in the sphere of investments and reproduction of basic funds as well as in the spheres of supplies and financial resources.

The share of financial resources of the VHJ's, especially of profit, in financing the VHJ's needs and in the formation of incentive funds, is being increased. In order to secure a change in financing investments (subsidies from the state budget for investments will be used only in exceptional cases), the share of profit used for this purpose in the khozraschot sphere will be increased. While during the Sixth Five-Year Plan the profit, after the payments in the khozraschot sphere, was approximately 20 percent, we anticipate to gradually increase this share to 30 percent and in the long run to 40 percent.

The effectiveness of the formation and utilization of incentive funds is being greatly increased. These funds will be created on the basis of norms and their formation will depend on the fulfillment of specific indices and on the formation of usable profit. These funds will be greatly affected by nonfulfillment of the planned profit or by deductions from profit as a result of fines, penalties for inferior production, etc.

Certain incentive funds will, in comparison with the existing situation, be reapplied (the development fund); in the case of others, their influence on the incentive (export-stimulating fund and fund for cultural and social needs) will be increased.

Material incentive in the growth of effective imports, especially from the point of view of prices paid on foreign markets, will be strengthened in regard to the significance of external economic relations.

The tasks of the foreign trade plan and the criteria of its effectiveness will play a decisive role in the selection and orientation of complex developmental programs, in the allocation of investments, in the directions of production and in the management of technical development and quality. The system of measures enlarges the scope of relations of the five-year plan and the operation of financial and economic instruments for material incentive in adopting and fulfilling progressive export tasks. We anticipate the realization of the tasks of the five-year plan in the export sphere with the help of annual plans, especially in accordance with the development of foreign prices.

We will also gradually create prerequisites in foreign-exchange rates and in the management of wholesale prices in order to establish higher criteria for an effective relationship between khozraschot and the international division of labor, especially as far as the process of international socialist economic integration and for a realistic view of the situation at foreign markets are concerned. Gradually, we will spell out a price mechanism in such a way as to set the prices of raw materials, fuel, materials and imported machinery and equipment in accordance with the development of the purchasing cost, i. e., import prices.

The application of the principles of closer dependence on the effectiveness and quality in the activity of khozraschot units will bring forward differences in the formation of resources among individual VHJ's and enterprises. There will be a difference between well-managed and badly managed enterprises and the intensity of economic pressure on the effectiveness of production will increase.

The development of khozraschot at the level of VHJ's is linked to its improvement at the level of enterprises and to the improvement of the intraenterprise khozraschot. We will work out rules for improved management within the VHJ's and the development of effective forms of intraenterprise management. Centrally determined principles for the development of khozraschot will serve as a basis for the solution of the above questions.

The tasks of the present stage require that the social division of labor in the management sphere be adjusted to the new economic conditions. These tasks require a new division in regard to jurisdiction and responsibility in the management of social production. The most important characteristic of this process, related to the ever increasing level of social production, is the transformation of the VHJ's into basic units of management in the khozraschot sphere and the increase in the standard of central national economic management.

The system of measures includes tasks for improving the most important areas of the management system assigned to organs of the state administration and economic organs. The mastering of the demanding economic tasks during the next period anticipates great improvement in the work of central managing organs of individual sectors and branches. The improvement in the work of central management must be demonstrated especially in its conceptual, coordinating and controlling roles, and in broadened responsibility for the solution of decisive national economic tasks, scientific-technical development and structural changes, and for the superior drafting and realization of national economic plans.

The transformation of the VHJ's into basic units of management is based on the resolutions of the 15th CPCZ Congress. The VHJ's will be given all necessary means, jurisdiction and responsibility. To this also are related changes in the organization of the production-technical base aimed at the creation of uniform production economic units able to secure the conceptual development of production and of individual branches, the drafting and realization of a uniform technical and investment policy, the needs of the national economy, and the development of external economic relations.

The enterprise still remains an important element of management in the newly outlined jurisdiction of the VHJ's. It is fully responsible for effective and quality production based on the needs of customers and for multifaceted care and social development of the working peoples' collectives.

However, improving the plan, khozraschot, and organizational structure of the economy will not by itself secure the achievement of specific tasks. The process of improving the entire economic mechanism sharply increases the demands on management workers. To understand the meaning and tasks of the economic policy, to adopt a genuine party approach toward the realization of approved measures, to show high organizational ability and tenacious effort to achieve the stated goals, to be able to offer leadership to workers and work with them, to develop their initiative, to fight for everything new and progressive--these are the demands which we are asking today from all managers.

The most decisive element for successful realization of the system of measures will be the way in which the subjective factor, namely, the people and especially managers, identify themselves with the scope and goal of the system and in which they carry out the necessary measures in practice. The success of the party's economic policy depends primarily on the cadres, namely, on their preparedness, responsibility and achievements.

The complexity of the economic development and progress of our society requires higher demands on the political and technical maturity and moral quality of managers, their ability to manage workers, creatively develop and consistently carry out the policy of the party within their jurisdiction. Leading workers must be subject to regular and rigorous evaluation which takes into consideration the results achieved and good care must be taken for their development.

To achieve the full application of the improved system of planned management requires the utilization of all existing resources, improvement of our participation in international socialist economic integration, the solution of new problems stemming from changes affecting the world economy, and the ability to better apply the results of science and technology as the decisive factor of the growth of labor productivity. As stated in the report submitted by the presidium of the CPCZ Central Committee at the 15th plenum of the Central Committee: "Those managers at any level of management who do not understand that will not be able to master the assigned tasks. The improved system of management and planning of the national economy puts qualitatively higher demands on education, people's consciousness, on the level of management and requires the maximum creative efforts of all workers' collectives."

At the same time, it is also necessary to pay systematic attention to sufficient room for the initiative and creative approach of the working people in order that their activity not be stifled by red tape and shortcomings in the organization of labor and management. The participation of the working people in management is a means for cementing the working collectives, it is a vehicle for unifying individual, collective and social interests, and especially it is a means for relating the communist party to the everyday activity of workers, technicians and managers.

The present level of management, including certain elements of the existing system of management planning, is outdated and does not correspond to the changed circumstances and possibilities of our national economy. I have in mind especially those elements of management who orient production to the utilization of extensive favtors and who more and more have problems with increased effectiveness. Similarly, the level of managing work in many sectors runs counter to the needs of present and future development.

The communist party and the top state economic organs react to the changing situation: the recently adopted system of measures for improving the planned management of the national economy in the period following 1980 insists on changes in the planned management which singularly aim to support the qualitative aspect of the reproduction process.

The effectiveness of the adopted measures depends on the way in which these steps are consistently specified and applied at all levels of management in the processes of decisionmaking, control and evaluation of results of the activity of organizations, collectives and individuals. This was also emphasized by Comrade Husak, secretary general of the CPCZ Central Committee: "The most important task we are facing now is to breakdown the adopted system into specifics. All organs must approach the implementation of the new system together and responsibly. They must give maximum care to the preparation for the gradual introduction of the new system in practice in order to make it a really effective instrument for the solution of the tasks of our national economy."

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AGRICULTURAL MECHANIZATION TRENDS FOR SEVENTH FIVE-YEAR PLAN

Prague TECHNICKY TYDENIK in Czech 15 Jul 80 p 6

[Article by Frantisek Kral: "Agriculture in the Seventh Five-Year Plan"]

> [Text] Preparatory work for the Seventh Five-Year Plan is climaxing at this time in all the national economic branches. This is also true in agriculture which faces demanding tasks of implementing the resolution of the Thirteenth Session of the CPCZ Central Committee. The principal goal in the coming period will be increasing self-sufficiency in food production. Suffice it to recall that, for example, the production of grain in the Seventh Five-Year Plan is to reach 56 to 58 million tons which, compared with the expected results in the Sixth Five-Year Plan, represents an increase of 3 to 5 million tons. The annual consumption of dairy products is to rise by the end of the next five-year plan to 250 kilograms, and the consumption of meat to at least 90 kilograms per person. Consumption of vegetables by 1985 is to grow to 91 kilograms, and fruit to 65 kilograms per person.

In this coming phase which is characterized by a substantial increase in agricultural production, along with a further decrease in the agricultural labor force, implementation of all these plans depends on an overall increase in labor productivity which will require a corresponding advance in agricultural technology.

Therefore, we must reach a qualitatively higher plateau in the technological base which will be expressed primarily by a substantially higher performance rate of individual machines, operating equipment, and machine systems, by higher installation performance of the energy base and changes in its structure, and by completing comprehensive mechanization in all basic production branches, along with transition to mechanization in especially the stationary production processes. In order to better utilize technology, we plan to expand the services for specialized activity (agronomical enterprises for fertilization processes, etc.)

The required trends of agricultural technological development of the period after 1980 are defined in the Czechoslovak System for Comprehensive Agricultural Mechanization which was prepared on the basis of results of technological research, testing of modern foreign technology, and the experiences of a broad collective of workers in the agricultural and engineering branches, both theoreticians and practitioners. According to this system, the coming period will be marked, with respect to automotive technological equipment, by an expansion of automobile transport techniques, in addition to increasingly broader use of self-operating machinery.

We plan to set up a unified, mutually-complementary system of automotive equipment, that is, unified basic centers in one category (motor, transmission, drive and steering systems, hydraulic and electrical outfitting, control and cabin) with which it will be possible to complement, together with the work force, mechanized equipment of various types (tractors, self-propelled machinery, trucks). This will enhance the serial nature of production, reduce operational expenditures, and service and maintenance costs in agriculture.

The anticipated development of installed performance of individual types of mechanized equipment, stemming from the reality of 1975 and the delivery plan through 1980, is shown in the following table.

Indicator/Year	1975	1980	1985
Tractors	5.35	7.4	8.2
Trucks	2.26	3.6	5.5
Automotive Machinery	1.77	3.2	4.7
Performance of Mobile Power Euipment Overall (10^6 kW)	9.39	14.2	18.4

A serious problem in the coming period will be agricultural transport and handling of materials. At the present time, transport, loading, unloading, represent 40 to 45 percent of the overall mechanized effort per unit of production, and about the same percentage of human labor needs. Tractor transport is dominant in agriculture, handling about 70 percent of the overall volume of transport. Utilization of tractors, however, no longer satisfies the standards for effective transport operations required under conditions of advanced socialist agricultural mass production.

The volume of agricultural transport represents roughly one quarter of the overall volume of road transport. Yet the share of agriculture in the number of conveyer vehicles in the national economy as a whole is only 12.2 percent, and less than 10 percent of the overall tonnage. Consequently, we have to make sure, in accordance with the resolution of the Thirteenth Session of the CPCZ Central Committee, that in the Seventh Five-Year Plan the agricultural sector will receive 10,000 specially adapted agricultural freight vehicles with a capacity of over 8 tons, including special equipment attachments, trailers, and 6,500 loaders reflecting agricultural needs.

With respect to vehicles required by the system of mechanization, we anticipate a transition from tractor to automobile techniques with the following parameters:
--capacity of 10 to 12 tons in trucks with a system of tecnological attachments (fertilizer spreaders, industrial fertilizers, liquid manure, lime, dross, etc.);
--capacity of 16 to 20 tons in trailer systems with a set of technologically-specialized equipment (collapsible panels, flatbed conveyer, cisterns, cattle conveyers, etc.);
--utilization of autotractor container systems for combining tractor and automobile techniques in basic 10-ton capacity, with special-purpose containers usable as transport crating, temporary storage, or technological equipment;
--self-propelled transport technology (automotive harvester vehicles of 4-to 7-ton capacity, automotive application technology, special vehicles for mountainous regions).

Exploitation of highly-productive transport equipment would be impossible without simultaneous introduction of a broad series of standard loaders, especially of the self-propelled type.

In transport of fertilizers to the fields and in spreading, we anticipate a gradual transition to a proportionate process based on supplying the ground spreaders with self-emptying conveyers. There will be further application of spraying from the air, especially as a result of proportionate nitrogen content applied during the growing period. In the application of liquid fertilizers we will, for the sake of plant protection, gradually introduce self-propelled machinery with an effective range of 20 meters, instead of the universal tractor sprayers.

Future outlook in soil processing requires that technological development take the road of high-performance mechanized equipment, including wide-angled plows with a capacity of as much as 3 ha. h^{-1}, broad application of new agronomic discoveries (lowering the depth of plowing, replacing plowing with underplanting with disc underplanters or chisel-type soil cultivators, introduction of seeding in unprocessed soil) and utilization of combines. In order to reduce breakdowns of not only soil processing machinery, but especially harvester equipment, we must employ rock-picking machines in rock-filled arable areas.

Grain will be harvested in the coming period by harvest threshers of 8 to 10 kg.s^{-1} penetration, instead of equipment used presently with a penetration capacity of only 4 to 6 kg.s^{-1}. For harvesting on slopes we will use equipment with a capacity of 5 kg.s^{-1} penetration, instead of standard threshers.

In the harvesting of fodder, which will continue to be a subject of special attention, we will stabilize two basic methods, namely, harvesting with self-propelled cutters and harvesting with pick-up vehicles. Harvesting cutters with appropriate adapters for both mowing and pick-up of thin-stemmed fodder and silage corn, will become a significant factor in universal application, including on slopes up to 10 to 12 degrees. Along with these machines, we will use pickup vehicles, the need for which is especially vital due to the size of slope areas (over 500,00 hectares), and we do not exclude their use even in flat areas (fodder vehicles, stacking of hay, etc.).

Much attention will also be devoted to mechanization in growing and harvesting potatoes, which remains at an unsatisfactory level. In harvesting late potatoes, we will gradually introduce three-row trailer harvesters and, in the near future, four-row automobile harvesters with 0.6 $ha.h^{-1}$ capacity, which will be servied by four workers. Also needed are special adapters for harvesters of consumer potatoes and the cultivation of crops, as well as on slopes up to 8 degrees.

In sugar beet harvesting, the two-phase technology will be fully applied, even though it is not inconceivable that the phases will be split differently for partial drying of the beet-tops in the rows.

Further technological steps will include lowering of the trend toward wastefulness in the present wide variety of machinery. Seeding and cultivation machines will be replaced by a 12-row self-propelled machine which will handle the following operations: sowing and application of herbicides and pesticides, rotary hoeing and plow-blade hoeing, and automatic sorting.

Mechanization of growing and harvesting vegetables and fruit is still at a low level. We envisage a substantial improvement in the coming period, we have high expectations regarding new types of machinery which will be developed and produced by the international enterprise AGROMAS.

Mechanization of labor in the animal production industry will be handled in accordance with the construction of new installations and extensive modernization of existing ones. Further development will be governed primarily by the requirement of achieving a point of minimum manual labor, maximum quality products, and a high level of hygienic safeguards.

In cattle breeding we expect a more intensive transition to vertical storage areas and stationary feed-lines equipped with elements of self-operated regulation and automation. In the future, we can expect computerized control.

Increasingly, we encounter efforts toward more effective utilization of all types of fodder by means of homogenization, processing, and optimum fodder composition. With gradual concentration, we use centralized fodder preparation and mixing installations, especially for bulk fodder.

In milking equipment, technological development focuses on automation of individual work phases and, in the future, we envisage installation of an automated milking process with the use of computer technology.

In hog breeding, we plan stationary mechanized feed lines, programmed automated operations, and minimum requirement for servicing. There will be significant growth in the use of multisectional stalls in one-level or multiple-floor construction.

In poultry breeding, we are leaning exclusively toward pen technology which will continue to be improved and applied in multisectional construction. We envisage that, starting with 1985, this method will be fully operational in the production of eggs and fowl breeding, and especially in poultry production.

In sheep breeding, which will be expanded, we plan gradual mechanization of labor, including milking. In this area also we can expect application of the multisectional stalls method in lamb feeding.

The implementation of the above-mentioned principal trends of techological development in agriculture, designed to meet the tasks of the Seventh Five-Year Plan, will increasingly depend on how other branches meet their material and technological needs, and with what degree of effectiveness agriculture is able to put these means to productive use.

9496
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CZECHOSLOVAKIA

CSR MINISTER CALLS FOR LOWER GRAIN LOSSES DURING HARVEST

Prague HOSPODARSKE NOVINY in Czech 15 Jul 80 pp 1, 6

[Article by Miroslav Petrik, CSR minister of agriculture and food]

[Text] Production of grain is becoming increasingly important and represents the basic prerequisite for successful future development of socialist agriculture. Harvest activities which climax the year-long effort in this sector are therefore a highly significant task, the preparation and successful fulfillment of which must be given constant attention at all levels of agricultural management, as well as by interested ministry organizations which contribute to a smooth accomplishment of this task.

The results of this year's harvest will have a decisive impact on the fulfillment of the Sixth Five-Year Plan in grain production, and on the creation of a launching platform for the development of agricultural production in the Seventh Five-Year Plan. Consequently, in accordance with the resolutions of the Thirteenth and Fourteenth Sessions of the CPCZ Central Committee and with the goals set forth by the Fifteenth CPCZ Congress, we approach this year's harvest with a high degree of exactingness in further increasing self-sufficiency in the production of those foodstuffs which can be grown in our temperate climate.

Edible Plant Development

The state plan decrees that the CSR will produce this year 7.150 million tons of grain, i.e., 11.1 percent more than the annual average in the 4 years of the Sixth Five-Year Plan. Expressed in fiscal terms, such production volume represents more than 50 percent of gross plant production on arable land. Purchases of legumes for the state inventory are to amount to 110,000 tons, i.e., 3,000 tons more than the plan for 1979. In winter rape, where seeding areas were expanded last year, market production has risen to 130,000 tons, which is 10,400 more than the plan for 1979.

Based on detailed evaluation of the results and causes of varying hectare yield in grain production in past years, ever since the completion of last year's harvest the whole system of agronomical measures has been oriented not only toward fulfillment of high production volume, but primarily toward good quality winter wheat for bakery needs and spring barley for malt production.

In order to meet the demanding task in grain production, a good launching platform was created in the fall of 1979 when sowing of winter crops was accomplished in most agricultural enterprises without serious problems and within optimum agronomical deadlines. Winter crops in the CSR were seeded on an area of 1,042,464 hectares, of which winter wheat on 765,102 hectares, winter rye on 136,988 hectares, winter barley on 74,844 hectares, and winter rape on 65,530 hectares. Significant movement occurred in the structural composition of winter crops in favor of rye by about 34,000 hectares, and winter rape by 24,000 hectares, as compared with 1979.

There was no serious damage to plants last winter and seeded winter crops survived the season very well. Losses through plowing were minimal (below the average of past years).

Due to rainy and cool weather, seeding of spring crops was delayed by more than 2 weeks, compared with the average of past years.

The prolonged period of cool weather in April and May also had a negative effect on the development of all field crops. Development of grain to date is highly uneven, both with respect to individual types and individual areas.

As a result of this, there is considerable variance in the development of winter and spring crops. The state of winter grain and rape can, on the average, be considered good to very good. The state of spring barley is generally weaker.

Agronomical measures in cultivation are designed to eliminate disease, weeds, and insect damage, and to apply the method of differentiated extraracine nourishment.

We anticipate that harvest activity will be initiated 10 to 14 days later than in normal years and will be contracted into a shorter time period. Judging by present development, excepting winter rape and barley, harvesting of the principal grain crops will not begin until late July and will extend, in greater measure than in previous years, into September.

Technological Preparation

Consequently, technological and organizational measures will be directed at thorough preparation of people, machines, transportation, and storage, so that the harvesting of winter rape and all types of grain can be executed with high quality and in the shortest possible time period--thus avoiding great operational congestion in September--and so that a smooth passage into autumn activities is ensured. For cereal and winter rape harvesting, we will have this year in the CSR at our disposal a total of 12,529 harvester threshers, of which 7573 E-512 type, 563 E-516s, 3155 SK-5s and SK-6s, and 971 of the older SK-4 type. In preparing for emergency situations, we have established within the VHJ [economic production units] Machine and Tractor Stations [STS] and Agricultural Machinery Repari Shops [OZS], an operational reserve of 300 threshers.

In the interest of economy in propellants, there is more emphasis on intensification and expansion of a cooperative process of harvesting technology involving shorter distances, such as within okreses and krajs. According to contracts concluded to date, an overall number of 8,548 threshers will be included in this project. By applying this system, we can reduce the average load on each harvester thresher from the former 128.6 hectares to 99.7 hectares.

The overall process of preparation and maintenance of harvesting technology is under regular scrutiny in the Czech Ministry of Agriculture and Food by a commission of experts which, with the participation of interested branches, deals with the problem of machinery spare parts. The ministry is in permanent consultation with supplier organizations and foreign trade enterprises on ways to secure adequate spare parts inventory for needed technological repairs. Nevertheless, results in this area are still unsatisfactory. As late as mid-June, a number of items in the spare part inventory for harvester combines were still unavailable. There are shortages especially in flat transmission belts, conveyers, and spare parts for cutting mechanisms. As a result of the fact that the cutting mechanism of the grain combine E-512 is of a similar type as that in imported cutters and presses, shortly before the hay gathering season we encountered an anomalous situation in which the needed parts of the cutting mechanism in already repaired grain combines were dismantled for use in hay gathering operations.

In an effort to at least partially improve this highly negative state of affairs in the spare parts inventory, we have spotted bottleneck items suitable for renovation which is performed in STS and OZS VHJs, as well as in agricultural enterprises and sponsoring plants. In the course of the harvest, we will set up an emergency reserve of selected spare parts. We will also establish emergency services in the STS and OZS VHJs and the sales network of the Central Enterprise for Agricultural Technology, which will service breakdowns and issue spare parts. We have already set up within the Central Enterprise for Agricultural Technology a nationwide communication and delivery system to handle necessary transport of needed spare parts.

Adequate fuels and energy deliveries for this year's harvest operations are ensured for agricultural enterprises and procurement organizations in the state plan. There is a precarious balance in light heating oil this year since, compared with real deliveries for agriculture in 1979, the overall ceiling is down by 44,000 tons. Kraj and okres agricultural administrations, directly managed organizations, and agricultural enterprises must, for the duration of harvest operations carefully manage the oil supply and lay away an operational reserve for use in case of inclement weather. An operational reserve necessary for special conditions during the harvest was set up under the jurisdiction of the CSR Ministry of Agriculture and Food. With the help of the national committees we are securing adequate deliveries of coal and coke from the Coal Storage Enterprises for dry grain products. Deliveries of city gas and natural gas will, during the peak period, be handled in cooperation with the communication and delivery system of the Czechoslovak Gas Enterprises.

The aim of all these measures is to ensure full use based on need of drying facilities in the course of the harvest, especially in damp weather.

The Best Grain for State Inventory

State purchases of grain in the CSR for this year are set at 2.280 million tons, i.e., 50,000 more than in 1979. In the interest of guaranteeing the best grain for food processing purposes, procurement tasks were included in the enterprise plans for food-producing oats, the volume of which will be stimulated via prices. Our aim is to purchase the best grain for state inventories.

For storage of grain from this year's harvest, procurement organizations and agricultural enterprises will have at their disposal a storage capacity of 7.014 million tons. In comparison with last year, storage capacity has increased by 148,000 tons. For storage of contracted amounts of grain purchased during the harvest, there is a shortage in storage capacity of 144,000 tons. Consequently, certain branches and kraj national committees were asked to help find space for temporary grain storage. In addition, within the branch, measures are planned in the VHJs of the processing industry to accept a maximum amount of grain already in the course of the principal procurement season, and provide temporary storage facilities in appropriate installations. Furthermore, we are readying a 5 percent storage reserve for use in case of inclement weather.

Much attention is devoted to readiness in cleaning and drying installations which are an important factor in rapid harvest operations and full utilization of harvest threshers. Their overall capacity has increased this year to 19,800 tons per hour, i.e., 1,600 tons per hour more than last year.

In order to achieve harmony and coordination of post-harvest operations with regard to smooth grain transit and elimination of losses in storage, additional storage facilities in procurement organizations and agricultural enterprises have been equipped with adequate ventilation systems. By the time of the harvest, enough of these will be available for storage of 2.160 million tons of grain, i.e., 214,200 tons more than last year.

More attention will be given again this year to making sure that the best grain is reserved for food and malt production. In the enterprises of the Agricultural Supply and Procurement complex, we have arranged for separate storage of the highest-quality wheat for bakery purposes and barley for malt production.

In order to ensure the maintenance of high quality, stored grain will be subject to close scrutiny conducted by a selected aktiv.

Emphasis on Reducing Losses

Special care will be devoted during the harvest to measures aimed at reducing losses in grain athering. Controls, using unified standard methods, will be conducted daily by specially-designated officials in every agricultural enterprise. In okreses and Krajs, the harvest commissions will assess performance at least once a week. Moreover, the central harvest commission will regularly evaluate the results of loss control and the extent and effectiveness of preventive measures.

Broadly-developed socialist competition will during this year's harvest again be oriented toward high-quality labor, maximum utilization of harvest threshers without exceeding permissible losses, economy in propellants, and a smooth comprehensive course of harvest operations.

In the interest of reducing losses this year, full application and development of competition in eliminating losses in grain transport is considered especially important, and we will fully support the competition sponsored by the Socialist Youth Union under the slogan "Not a Grain Wasted." Full support will also be accorded to competition organized by the Central Committee of the Czechoslovak-Soviet Friendship League and the CSR Ministry of Agriculture and Food for the SK-5 and SK-6 combine crews.

In order to gain objective information, commission protocols on the completion of harvest operations will be drawn up in accordance with the "Methodological Instructions for a Unified Approach to Grain Harvest Control and Preparation of a Balance Sheet of Grain Utilization in the CSSR in 1980." The aim of this measure is to achieve a unified approach to the preparation of harvest reports in all agricultural enterprises.

At all levels of management in agriculture, the fodder industry, and agricultural enterprises processing grain for food production, we will apply principles this year of binding procedures in management, beginning with the earliest days of the harvest when harvested grain figures will be recorded.

Not Only the Harvest Proper

An indivisible component of harvest operations is the gathering and storage of straw in the shortest possible period of time. Quality straw plays a more important role each year in securing the cattle fodder base. This area is the subject of intensified effort and measures, especially with regard to organization of a smooth process of grain and straw gathering, which should be applied to the maximum possible extent. We have a good deal of experience in this area, especially in the application of the Ipatov method, which under our conditions has been found beneficial. Last year we harvested an area of over 450,000 hectares using this method.

Following the good experiences of last year, we are devoting great care to the seeding of stubble-field secondary crops with application of substantially better type composition for which prerequisites were created in the seeding. Stubble-field mixtures will be seeded in the CSR on at least 260,000 hectares, i.e., 8 percent of arable land. The overall extent of secondary crop cultivation will thus grow this year to 11 percent of arable land.

Labor accumulation in the course of the harvest places great demand on organization and overall operational management toward full utilization of harvesting techniques. In consonance with this requirement, there will be uninterrupted operations during the harvest in services enterprises and purchasing organizations, especially in repair operations, spare parts sales, and receipt of grain at state inventories.

An inseparable component of harvest preparation and implementation must be consideration of and readiness for setting up measures for safety for workers, health protection, caring for them, as well as ensuring fire prevention measures. This whole area will be regularly monitored and assessed at all levels of agricultural management.

During the harvest, in cooperation with the trade sector, we must also ensure smooth supply to the market of early potatoes, the outlook for which is hopeful. By the end of June, domestic production of this crop supplied the market with over 6,000 tons. This demands that all producer regions consistently fulfill all operational tasks in potato purchases and, before the harvest, build up a sufficient reserve which would guarantee that, in case of weather deterioration, the market would still be satisfied.

In hops-producing regions, everything must be done, in terms of organization, materials, and technology, for a successful hops harvest. Preparations are under way for housing, feeding, and providing cultural activities for 18,230 brigade workers who will be helping with the harvest. By the same token, everything is being readied in harvest technology for smooth, effective operation, as well as for post-harvest hops processing. The aim is to gather this export crop in the best possible quality, with maximum economy, and minimum losses.

During the harvest we must also secure timely gathering of early fruits and vegetables for direct market supply and for the canning industry. Based on experiences of past years we ensure, in cooperation with the national committees, sufficient numbers of brigade workers, and timely transport and distribution, so that fruits and vegetables can be made ready for the market in appropriate quality and in a manner ensuring that all regions are supplied evenly.

Even though the attention of managers and technicians is rightly focused on the grain harvest, we must not for a moment disregard animal production. Since the beginning of this year, we have been exceeding the plan in milk purchases by more than 96 million liters, i.e., 5 percent. Compared with the same period last year, we have produced roughly 160 million liters more. Recently, we have been exceeding the plan in the purchases of slaughter beef and pork products. In the first half of this year, pork purchases were fulfilled roughly by 49 percent of the annual plan. Egg purchases are being successfully met and in the timed plan there was an excess of 60 million.

The good trend in animal production must be ensured even during the harvest and fall operations. We expect a greater effort by all zootechnicians, animal tenders, as well as those whose responsibility it is to provide adequate supplies of fodder. The basic prerequisite still lies in regular daily deliveries of green fodder and maximum utilization of pastures. The services of the STS and OZS must devote more attention in the summer period to milk refrigeration equipment. The first duty during the third quarter will be fulfillment of animal product purchases, especially slaughter beef and pork, which must be regularly monitored and assessed by the management of agricultural enterprises, in addition to their demanding tasks in the organization and conduct of harvest operations.

In closing, I would like to express my appreciation to party bodies and organizations, workers of the national committees of all levels, and organizations of the National Front, for their effective assistance in the gathering of hay, and simultaneously voice my conviction that, in the harvest of grain, vegetables, and fruits, they will again assist the agricultural enterprises in the fulfillment of their responsible task, namely, ensuring the needs of the market and the processing industry, thus contributing to a high standard of living for citizens of the Czechoslovak Socialist Republic.

9496
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MAY 1980 ECONOMIC RESULTS PUBLISHED

Prague HOSPODARSKE NOVINY in Czech 27 Jun 80 p 2

[Article by Federal Statistical Office: "Report on Plan Fulfillment, May 1980"]

[Text] The development of the national economy showed the following basic tendencies in May:

--in industry, the largest increase over the same period last year was in deliveries for export to nonsocialist countries; deliveries for export to socialist countries and for production use and operations increased more slowly; sales for domestic trade remained at roughly the level of last May; the planned production tasks were fulfilled in May;

--in the construction industry, the plan for construction work was not fulfilled in May;

--in agriculture, milk procurement considerably exceeded last May's level;

--public goods transport handled the prescribed transport tasks well in May.

Centrally planned industry exceeded its planned delivery quotas in all sales areas in the period January-May 1980. The greatest overfulfillment of enterprise plans was achieved in deliveries for export to nonsocialist countries, amounting to 11.5 percent at FOC [free of charge] prices (3.5 percent at wholesale prices); deliveries for export to socialist countries overfulfilled the plan by 8.3 percent at FOC prices (5.6 percent at wholesale prices); deliveries for domestic trade exceeded the plan by 2.4 percent at retail prices. Sales quotas for production use and operations were 101.3 percent fulfilled by the industrial enterprises, while delivery quotas for investment were 107.8 percent fulfilled at wholesale prices. Deliveries in all the economic areas of sales were higher in the first 5 months of this year than in January-May 1979.

The indicators designated for current monitoring of plan fulfillment by enterprises were fulfilled during January-April 1980 by 404 organizations (i.e. by 45.9 percent of the total number of enterprises for which these indicators were designated). In the enterprises for which indicators of sales structure were designated, overall the plan was exceeded for all indicators except deliveries for selected construction projects from departments of the federal ministries of Metallurgy and Heavy Engineering, and General Engineering. In addition, the plan was not fulfilled by the organizations which are evaluated in terms of the indicator of expenditures per koruna of adjusted output.

With the exception of a certain worsening in April, the results achieved as regards total and material expenditures per unit of adjusted output in the operation of enterprises in the industrial departments have been better since the beginning of the year than the figures assigned by the annual state plan.

In agriculture, thinning of sugar beets has continued, and as of 12 June it had been done on almost 85 percent of the total acreage. Progress in harvesting perennial forage crops, however, is lagging behind the multiyear average. As of 12 June, 33 percent of the planned area had been harvested. The harvesting of fodder from meadows is just beginning, and faster progress is prevented by slow growth. In livestock production, an increase in the productivity of stock continues, manifesting itself primarily in increases in milk yield and average egg yield. The time plan for procurement over the 5 months was 104.3 percent fulfilled for slaughter poultry, 104.1 percent fulfilled for milk and 102.7 percent fulfilled for eggs. The time plan for procurement of slaughter animals was not fulfilled, and a low fulfillment level was posted in particular for slaughter hogs (97 percent).

Public goods transport dealt with the prescribed tasks well in May. The total amount of commodities transported was 794,000 tons, or 1.5 percent, above the planned level. The planned tasks in railway transport were also fulfilled by Czechoslovak Motor Transport [CSAD]. From the beginning of the year until the end of May, the public goods transport system carried 254.4 million tons of commodities, 0.7 percent more than the assignment for this period in the detailed plan. Railway transport 99.4 percent fulfilled its planned transport tasks for January-May; the shortfall was 736,000 tons of goods. The planned figure for commodities carried by the Czechoslovak Railways overall was 98 percent fulfilled for the 5 months; the plan for average daily tonnage was 98.1 percent fulfilled by the carrier units.

The construction industry failed again in May to fulfill the monthly segment of the enterprise plans for construction work. The quantity of construction work carried out with the organizations' own workers, amounting to Kcs 7.4 billion, represents 98.7 percent of the May plan and is 0.6

percent below the same month last year. Average daily output increased by 9.3 percent. Since the beginning of the year, the amount of work done with internal resources [ZSV] has amounted to Kcs 31.9 billion, 37.4 percent of the annual plan assignment and 98.9 percent of the enterprise plan segment for January-May. The number of construction enterprises not fulfilling their production plans increased compared with the preceding period: during the first 5 months of the year the enterprise plans for work with internal resources were not fulfilled by 147 enterprises, more than 60 percent of the total number. A low level of plan fulfillment was attained in contractor residential construction. Overall, during the 5 months the contracting construction enterprises turned over 14,460 apartments, 15.6 percent of the annual plan figure and 90 percent of the planned number for January-May.

The rate of increase of construction work carried out with the organizations' own workers during January-May was 103.9 percent of the figure for the same period last year; the figure in the annual plan is 104.5 percent. Average daily output increased by 4.9 percent during the 5-month period. Fulfillment of the set of indicators designated for current monitoring of plan fulfillment was variable in January-April. All indicators were fulfilled by about 18 percent of the construction enterprises. Good plan fulfillment was achieved in priority tasks and centrally reviewed projects and in projects in priority areas. There is still latent potential for fulfillment of the plan for decreasing expenditure levels.

In capital construction, during January-April investment work and deliveries (other than project Z and other self-help work) worth Kcs 33.9 billion were performed. According to estimates for May, the total quantity of investment work and deliveries for the 5 months was Kcs 43.9 billion, 4.9 percent higher than the same period last year. Larger increases were posted for deliveries of machinery and equipment (5.2 percent) than for construction work (4.5 percent). By the end of May about 31.4 percent of the capital construction in the annual plan had been completed.

In foreign trade, during January-May 1980, 37.0 percent (at current prices) of the year's plan assignment for export to socialist countries was fulfilled, as were 36.1 percent of the plan for export to socialist countries, 33.7 percent of the plan for import from socialist countries and 36.8 percent of the plan for import from nonsocialist countries. The rate of increase of exports to and imports from nonsocialist countries posted during the 5 months was affected by continuing price increases, which are larger than those planned for the year. In trade with socialist countries, the planned pace for the year was exceeded by export. The ratio of FOC prices to wholesale prices during the first 4 months of the year was more favorable than the planned figure for the year in export to nonsocialist countries, while in export to socialist countries it did not reach the annual-plan value.

Basic Indicators of Development of National Economy in May 1980
Increments Over Comparable 1979 Period (in percent)

	May	Jan- 1980 May	Federal Plan[1]
Sales:			
Capital deliveries total in wholesale prices	*	1.1	-4.5
Domestic market deliveries at retail prices	*	4.8	4.8
Exports to socialist countries			
at wholesale prices	*	5.4	3.5
at FOC [free of charge] prices	*	9.3	8.0
Exports to nonsocialist countries			
at wholesale prices	*	8.5	3.9
at FOC prices	*	31.3	14.5
Other sales for production use and operations at wholesale prices	*	40.0	*
Industry:			
Gross production	-2.4	4.2	3.7
Average number of workers	0.8	0.8	0.8
Labor productivity	-3.2	3.4	3.2
Construction:			
Construction work completed with internal resources	-0.6	3.9	4.5
Average number of workers	0.3	0.3	0.4
Labor productivity	-0.9	3.6	4.1
Housing units delivered by contracting enterprises	-7.5	1.6	16.8
Procurement:			
Slaughter animals (including poultry)	-3.7	-1.8	0.4
Milk	8.6	8.0	1.8
Eggs	-2.1	4.1	3.2
Retail Turnover:			
Of the main trade systems	3.2	5.9	2.2[2]
Foreign Trade:[3]			
Exports to socialist countries	3.5	9.3	8.0
Exports to nonsocialist countries	11.9	29.1	16.5
Imports from socialist countries	-6.5	-1.0	8.9
Imports from nonsocialist countries	37.9	28.9	8.0

[table continued]

	Apr	Jan-Apr	
Completed Investment Projects and Deliveries			
(less action Z and other self-help)	6.2	6.8	2.5
including: construction	2.9	6.8	6.3
machinery and equipment	10.4	6.5	-2.0
National Income[5]	5.7	5.8	5.4[4]
of which: wages	4.6	4.8	4.0
Actual Monetary Expenditures[5]	9.8	7.9	3.7[4]

[Key to table]

1. Increments compared to expected actual 1979 results with the exception of work indicators in the industry.
2. All trade systems
3. Data on actual results refer to actual transactions and do not include unplanned actions in the framework of cooperation, unplanned reexport trade operations, barter, tied trade transactions, etc.
4. Including estimated interest for loans
5. Monthly data calculated according to the treasury plan of the Czechoslovak State Bank.

In domestic commerce, this May the pace of retail turnover in current prices was slower than in April, resulting among other things from a smaller number of sales days. The organizations belonging to the main trade systems achieved a retail turnover of Kcs 17.5 billion in May. The rate of growth of retail turnover was 103.2 percent of the figure for May 1979 (103.4 percent in the retail network and 102.3 percent in public dining facilities).

National income increased in January-April 1980 by 5.8 percent over the same period last year, while wage income was up by 4.8 percent. Actual money expenditures during the first 4 months of the year were up 7.9 percent over the same period last year.

Personal savings accounts grew by Kcs 0.6 billion between 15 April and 15 May. Total savings as of 15 May 1980 were Kcs 151.3 billion, Kcs 3.2 billion higher than a year ago.

The money supply was Kcs 42.6 billion as of 31 May 1980.

8480
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PETROCHEMICAL COMBINE EXPANSION, RATIONALIZATION DISCUSSED

East Berlin EINHEIT in German Vol 35 No 7/8, Jul-Aug 80 signed to press 13 Jun 80 pp 729-733

[Article by Dr Horst Martens, director, Friedrich Engels SED Bezirk School, Frankfurt/Oder: "Rationalization in the Interest of the Workers"]

> [Text] Under socialist production conditions, socialist rationalization is being carried out with people for their benefit. Their active participation in the process is a decisive criterion. Examples from the PCK [Petrochemical Combine], Schwedt, demonstrate what tasks there are to accomplish here, how the working people are being persuaded through ideological work to participate actively and which problems are being mastered in the process.

Today there is probably no doubt anywhere that the acceleration of scientific-technical progress -- to a great extent through the introduction of modern technologies into production -- is ensuring dynamic production growth for the economy, a significant rise in the quality and effectiveness of labor. The increasingly more effective use of the results of science and technology by the working people and the growing output of each individual dedicated to this end are proving to be decisive prerequisites for the continued realization of our program of full employment, public welfare, growth and stability.

Thus, by following the path of socialist rationalization in our country, we are taking the most productive and at the same time the only possible route toward attaining the maximum effectiveness and quality of labor. "The most important thing," emphasized Comrade Erich Honecker at the 12th Central Committee Plenum, "is to increase substantially our country's economic productive capacity. We are convinced in this regard that the communists will exert their influence everywhere to accelerate scientific-technical progress, the decisive link in the chain leading to the further stable and dynamic development of the economy of the German Democratic Republic."[1]

According to the social purport of rationalization, it is the complete opposite under capitalist conditions from what it is under socialist conditions, since here the people "become for the first time the actual and conscious masters of nature, because and since they become masters of their own socialization."[2] "Given the certainty of full employment, [rationalization] helps improve working and living conditions for workers and white-collar employees... . It improves production conditions, and, above all, rationalization is carried out jointly with the working people. Supported by this community of interests, the whole force behind rationalization must be utilized, and we must rationalize in at least as grand a style as the capitalists are doing."[3]

It is a rationalization that is being carried out by the working people for the working people, a process in which the creativity of the working masses can find full expression. We cite in this connection some experiences gathered by the main enterprise of the Petrochemical Combine, Schwedt, where rationalization has been going on since 1978 on a scale such as has never been experienced.

New Avenues Pursued

The main enterprise of the Schwedt Petrochemical Combine is a highly modern chemical enterprise with more than 8,500 employees. With the aim of increasing the effectiveness of the economy as a whole, this plant is being expanded through the construction of two new large-scale chemical installations: an installation for the production of protein fodder yeast and a cracking and aromatics complex. They are designed to further refine the petroleum cracking process and make better and more effective use of petroleum. Both installations will begin operating in 1981-1982, thus doubling the enterprise's present capital assets. The enterprise was charged with obtaining the 2,400 workers needed for these new installations through the rationalization of jobs in its own plant.

A rationalization project of this magnitude could not be accomplished on the basis of previous methods and experience (rationalization in segments of years, for example). Rather, the objectives required a qualitative rethinking, a critical examination of past experiences and a search for new solutions; they required the drafting of a rationalization strategy. Used in this process were Soviet experiences gathered from the "Polymir" production association in Novopolotsk, Vitebsk Oblast (Belorussian SSR), with which Frankfurt/Oder Bezirk has maintained a close partnership for years. The Soviet comrades in this same kind of enterprise were faced with similar problems years ago. They had to open up new installations with no manpower reserves. They therefore developed a long-range rationalization strategy known as the Novopolotsk Method. With the aid of this method, they were able to cut back their workforce by 20 percent and assign these workers to the new installations.

On behalf of the Frankfurt/Oder SED Bezirk Management, the Schwedt comrades studied the ideas obtained there and applied them creatively. At the beginning of 1978, the general director and the party management of the main enterprise of the Schwedt PCK presented their rationalization strategy, which has since then become known far beyond the enterprise and the bezirk under the name "Fewer Produce More."

A conception of the task of obtaining 2,400 workers through rationalization within the period from 1978 to 1981-1982 was initially mainly a process of discussion, one of working out a uniform standpoint on the range and magnitude of the requirements and on the resulting demands upon the political leadership work of the party and the state management, upon conduct of the socialist competition. It turned out that an improvement in the quality of political-ideological work was needed if appropriate attitudes and convictions were to be inclucated. On the basis of this recognition, the main enterprise of the Schwedt PCK is and has since 1978 been pursuing mainly the following avenues for rationalization:

Centralization and concentration of management and production sectors, together with a pervasive rationalization and partial reordering of work processes in management, control and production;

Expansion of service sectors in the installations by making further changes in the existing division of labor and work organization;

Establishment of a new regime for starting and stopping processes, together with the drafting of staffing norms for the normal operating mode as well as for the peak operating mode of the installations;

Expansion of the functions of the labor collectives at the installations by transferring certain maintenance and repair responsibilities;

Increase in the effectiveness of planned investment measures, among other ways by minimizing staffing norms.

Using these means, it will be possible to gain 1,763 workers through specific rationalization measures in the existing installations. In addition, interdisciplinary WAO /scientific work organization/ collectives working on investment projects are being used to eliminate 637 workers originally called for in the staffing norms. These personnel will make it possible to operate the large new installations safely while observing all safety regulations. Mastery of the complex processes leading to the attainment of this lofty goal will require their proper central integration and strict management by the general director in cooperation with the party management. Indeed, it will require staff methods of leadership at the various levels, methods that are now in use in Schwedt.

Gain the Conscious Participation of the Working People

It is obvious that such a complex process requiring precise scientific management cannot be carried out successfully without active participation by the working people, without their conscious inclusion -- in other words, without a broad realization of socialist democracy. Schwedt's experiences confirm wholly and completely a basic truth in our lives: Socialist democracy is part of the essence of socialist rationalization and its implementation. New dimensions in socialist rationalization are virtually inconceivable without the conscious participation of those who do the producing. It takes comprehensive teamwork to realize such a rationalization strategy, teamwork in which the scientist is in demand just as much as the worker or master workman with long years of practical experience. It requires the participation of all social forces in the enterprise as an essential prerequisite for accomplishing the tasks at hand. The issue is real codetermination, and even more than that, a real sense of shared responsibility based on factual knowledge, on a deep understanding of the need for rationalization in new dimensions, on a greater and greater awareness of social interrelationships.

In this context, let us discuss some experiences from the fertilizer production sector in the main enterprise of the PCK, Schwedt. This part of the enterprise was developed as a model sector, since the scope of the objectives made it impossible in such a highly complex combine enterprise to begin with rationalization at the same time in all sectors, thus making it necessary to proceed gradually.

Complete documentation on rationalization measures in this production sector has been available for some time; scheduled projects for the rationalization of jobs are being developed in five other sectors. The complete enterprise documentation is to be submitted to the 10th SED Party Congress.

Intensive work was done in the fertilizer sector, as in the entire plant, to completely convince all the working people of the need for rationalization and to discuss with them their personal part in it as well as all the problems that are involved. Issues like these came up: the necessity of leaving a labor collective after an association of many years in many cases; of continuing one's education after working hours; of adapting to the rhythm of a different shift; and also, in many instances, an honest concern about dealing with the new requirements. It took close collaboration among party organization, state managers, trade union and youth organization to clear up these kinds of questions, reaching every labor collective and every worker.

To be sure, this process was not without conflict. Between April and June 1978 in the fertilizer sector alone, notes were kept on more than 600 discussions and consultations. These were frequently debates uninterrupted by applause, debates which gradually brought the discussion around from the why's to the how's. Tied in with this was a broad publicity campaign using the enterprise newspaper and radio system, lecturers' councils, training facilities and leaflets. Every question posed in the debates was recorded. Then it was decided which questions were of general interest and would be answered using public relations means, and which were individual questions to be cleared up in personal interviews. There were as many as seven discussions with some colleagues; their families were often included, since a change of shift or participation in a lengthy night course, for example, are indeed matters that also concern the family.

Regardless of how indispensable these measures were to success, the inclusion of the working people was by no means limited to this. New forms of real cooperation by workers and members of the intelligentsia were developed for the purpose of realising the rationalization strategy. Especially successful was the establishment of an honorary Council for Scientific Work Organisation as well as WAO collectives in the different sectors. Belonging to these collectives are representatives of party organizations and other social forces in addition to specialists, state managers and practical experts. Working in the fertilizer sector is an honorary WAO collective with five work groups. One of these five, for example, deals with public relations and another with matters of personnel development and further training.

In the course of a few months, a comprehensive WAO study produced the following results: With an employee staff numbering somewhat more than 400 in this sector, by 1982 there can be a gradual elimination of 38 jobs that are occupied by 91 workers, or 21 percent of the staff. Since production will continue to increase at the same time, labor productivity in these installations will rise to an average of 138.4 percent. Of the 91 workers, 19 are working in management. Here especially, the aforementioned centralization and concentration of management and production sectors will be having a favorable effect.

Active Role of WAO

A total of 340 workers -- about 85 percent of those employed there -- were actively included in the most varied ways in the drafting of the comprehensive WAO study. Some were assigned special duties by way of innovator agreements. The workers put down in detail in the study those technical, technological, work-organizational and other measures that have to be realized if manpower retirement is to be truly assured, while permitting no deterioration of working or living conditions and fully guaranteeing labor and production safety.

These facts constitute a characteristic expression of the realization of socialist democracy in everyday life; they express the fact that socialist rationalization is a creative process which makes great demands upon the individual, which encourages and challenges him completely. It becomes apparent here that socialist democracy does not exhaust itself solely in real codetermination; rather, it is profoundly linked with the development of socialist individuals also by way of further education and training. Needed here was a qualifying process of a breadth and depth never experienced before, one which the fertilizer workers initiated with the reflection that an increasing level of qualifications makes possible greater flexibility of job assignments, and that job retrenchment requires a greater willingness to accept responsibility, a situation that also demands a background of knowledge. They wrote: "Of course we do not want to and must not expect anyone to take on more than he is actually capable of as regards his knowledge and abilities. On the other hand, we nevertheless consider it absolutely normal to challenge fully all the abilities and performance reserves of the individual, also for the development of his personality."[4]

The 91 workers whose jobs were targets for retrenchment were shown a catalog of job offers from which they could select a job in the new installations that matched their qualifications and productive capacity and their physical and mental endurance. Each position is linked to an appropriate qualifying program which is now being carried out in various forms through enterprise facilities for education and advanced training.

There are also personal training programs for those who will be staying in the existing installations but will have expanded service zones. These plans provide that a colleague qualify as primary installation operator wherever two installations are operating, for example. This would reduce to 20 percent the passive time periods recorded by an operator, periods which previously amounted to about 70 percent of an operator's working hours. Included in the active time periods and added to the expanded service zones are specific maintenance duties to be performed while the installations are operating. This also requires appropriate training. The education and training sessions generally take place outside of working hours.

Results Speak for Themselves

How has the level of qualifications changed in the fertilizer sector? Before the rationalization measures were instituted, a single employee was capable on the average of meeting the demands of between 2.9 and 4.9 jobs; afterwards, this average was between 4.9 and 6 jobs. This therefore signifies an enormous increase in productive capacity as the result of increased qualifications on the part of the workers.

All continuing education measures are aimed at developing a sense of responsibility, reliability, discipline on the job, initiative and creativity and at increasing the willingness to engage in a permanent program of continuing education. They therefore foster personality development among the working people, thus establishing decisive bases for making democracy a reality.

A closer scrutiny of this sector today reveals the following conditions: The sector presently has the lowest down-time levels; the collective as a whole has strengthened itself; an optimistic, healthy, confident working atmosphere prevails.

Precise job analyses that led to altered job structures and improved working conditions also made it possible to increase by 1 percent the proportion of jobs for women.

All this underscores the fact that socialist rationalization is inseparably linked with socialist democracy, is objectively tied to the process of increasing flexibility of assignment and development of the abilities and skills of the working people. No person is or will become superfluous. As a rule, each one is accorded greater responsibility. Socialist rationalization can be implemented only if the creative thoughts of every working person flow into it, only if every important issue is discussed with each one, only if each one participates actively and his ideas are used. It is also in this way that the necessary confidence in the social objective is strengthened.

Friedrich Engels said in his work entitled "The Evolution of Socialism from Utopia to Science": "The process of men's own socialization, which hitherto was as though forced upon them by nature and history, now becomes a free act on their part.... Not until then will men begin to make their history themselves, with total awareness; not until then will the social causes set in motion by them begin to have predominantly and to an ever-increasing degree the effects that are also desired by them. It is mankind's leap out of the realm of necessity into the realm of freedom."[5]

Our practice of real socialism makes clear that this leap into the realm of freedom is a revolutionary process, one which encourages and totally challenges man, a process whose essence is the development and conscious expression of the socialist personality and which makes very great demands upon the political leadership of our party. It demands the most meaningful, the most efficient and the most effective use of that which is most valuable -- the human being -- and it demands of the working people their creativity, ideas and the great and conscious use of their whole personalities.

FOOTNOTES

1. Erich Honecker, "The Best for the 10th Party Congress! All for the Public Weal!" -- 12th SED Central Committee Plenum, Dietz Publishing House, Berlin, 1980, p 15.

2. Friedrich Engels, "The Evolution of Socialism from Utopia to Science," "Works of Marx and Engels," Vol 19, Dietz Publishing House, Berlin, 1962, p 226.

3. Erich Honecker, "The Socialist Revolution in the GDR and its Prospects for the Future," Dietz Publishing House, Berlin, 1977, p 32.

4. NEUER TAG, 6 June 1978, p 3.

5. Friedrich Engels, op cit, p 226.

7458
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COMBINE SYSTEM, NEW MANAGEMENT PRACTICES SPUR GROWTH

Oslo ARBEIDERBLADET in Norwegian 25 Aug 80 p 14

[Article by Dag Halvorsen: "Economic Optimism in the GDR"]

[Text] The results from the first half of 1980 are so good that GDR economists now once more look more optimistically on the future. The output of industrial goods rose 5.7 percent against a planned mere 4.5 percent. But progress costs. Investments went up nine percent, more than three times as much as the planned amount. On the other hand, net profit rose only three percent against a planned four percent. This was due to price increases which, however, did not include everday goods.

The optimism cannot cover up the fact that there is comparatively less for consumers, both in the GDR and in the other COMECON countries. In the Eastern economic cooperation organization coordination of the national five-year plans which begin on 1 January 1981 is now being prepared. All are betting on somewhat lower growth and on a slower increase in the standard of living than in the 70's. The world crisis which is throwing its shadow over foreign trade and energy problems has also hit Eastern Europe.

But the East Germans occupy first place in the East. This is shown both by these figures and other statistics which, for one thing, reveal that the GDR has been more than fulfilling its ambitious housing construction program, while the Czechs and especially the Poles are lagging behind.

Housing is still very inexpensive. Housing expenses of under five percent of one's pay are usual. Sixteen billion of the State budget's 140 billion go toward subsidies. Of this amount seven billion are used to hold the price level for everday goods constant and the rest is used mostly for subsidizing housing and transportation. In addition come increasing contributions to families with children. All this contributes to a secure social standard which can only be dreamed of elsewhere in the East, and for that matter in a number of Western countries.

The reverse side of these triumphs is of course the enormous subsidies, which are criticized by more market-oriented economists in other Eastern countries, too. They think that it is possible to arrive at a more realistic price level. But their colleagues in the GDR say that they know exactly what goes toward social subsidies and that industrial prices have changed since 1976. They have increased considerably, in pace with the development in the world market, so that businesses are operating with relatively realistic prices for materials, goods and services. This has, by the way, been a traditional sore point in Eastern economics.

Moreover, prices on a number of consumer goods have gone up. Suddenly bedclothes disappeared from shops, only to just as suddenly turn up again with almost 100-percent higher prices. A spray can which cost M8 went up to M14.50. But people have money. Japanese color televisions for M5100 were quickly sold out. There continues to be more money than goods in the GDR although the disparities are not so flagrant as in Poland. There have at times been problems with getting meat and there are lines outside shops which sell finer goods, but the supply is largely satisfactory, as seen by Eastern eyes, in any case.

Productivity increased better than planned in 1980. The social standard and better organization in daily life than in the other Eastern countries can influence the promotion of productivity. One does not have to use a half a day to go to the doctor or to go shopping, such as in Poland; there everyone who can shirks as much as he can. But the most important reason, we hear tell, is better organization in industry.

In reality it is a question of a new East German economic reform which has developed gradually since 1976. The key positions in industry and construction are now occupied by, for the time being, 129 so-called combines. They now include all branches and consist in most cases of a number of concerns. The role of ministries in daily operations has been considerably reduced. The way from the combine management and to individual firms is shorter. This has resulted in the fact that capable professionals, who are now found primarily in the management of combines, have gained wider latitude and can operate more effectively. This is an advantage which experts in the East and West agree on.

The West Germans especially, of course, follow closely the development of the GDR's economy. The first results are encouraging; nevertheless the new management teams in the GDR are faced with very difficult tasks. The level of investment must be kept under control. It is necessary to save on energy and, not least, on materials; besides there is a potential here. Combines will also play a more independent role in foreign trade and have their own research apparatus with direct contact with academic institutions.

The combines are also direct partners in the planning commission. In the GDR they continue to believe in a plan, in setting concrete goals for what must be achieved in five years, goals expressed in tons, marks and pfennigs. But we understand that it is rather a question of a detailed forecast. In our times one cannot be the slave of a plan; also, yearly plans must be corrected if economic development makes this necessary.

There is much to indicate that the GDR is in development toward greater efficiency and a more intelligent management system. But the trade unions continue to have primarily social tasks. The GDR is a managed society; the question of an industrial democracy is not on the agenda. On the other hand, even the most critically inclined admit that the management is quite occupied with protecting the social standard for the average East German family. It is a system which harkens back not only to Marx, but also to Bismarck, who wanted to have order, but also introduced Europe's first modern social legislation.

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ECONOMIC RELATIONS WITH IRAQ DESCRIBED

Budapest FIGYELO in Hungarian No 31, 30 Jul 80 p 7

[Article by Janos Menyhart: "Our Most Important Partner"]

[Text] The economic relations between the Hungarian People's Republic and the Republic of Iraq have grown steadily in the period since the Iraqi Revolution of 17 July 1968. But this growth was especially dynamic in the course of the 1970's. During this period the two states concluded several agreements, which created a favorable atmosphere for cooperation and for expansion of trade. In the course of the past few years the Republic of Iraq has become our leading trading partner among the developing countries.

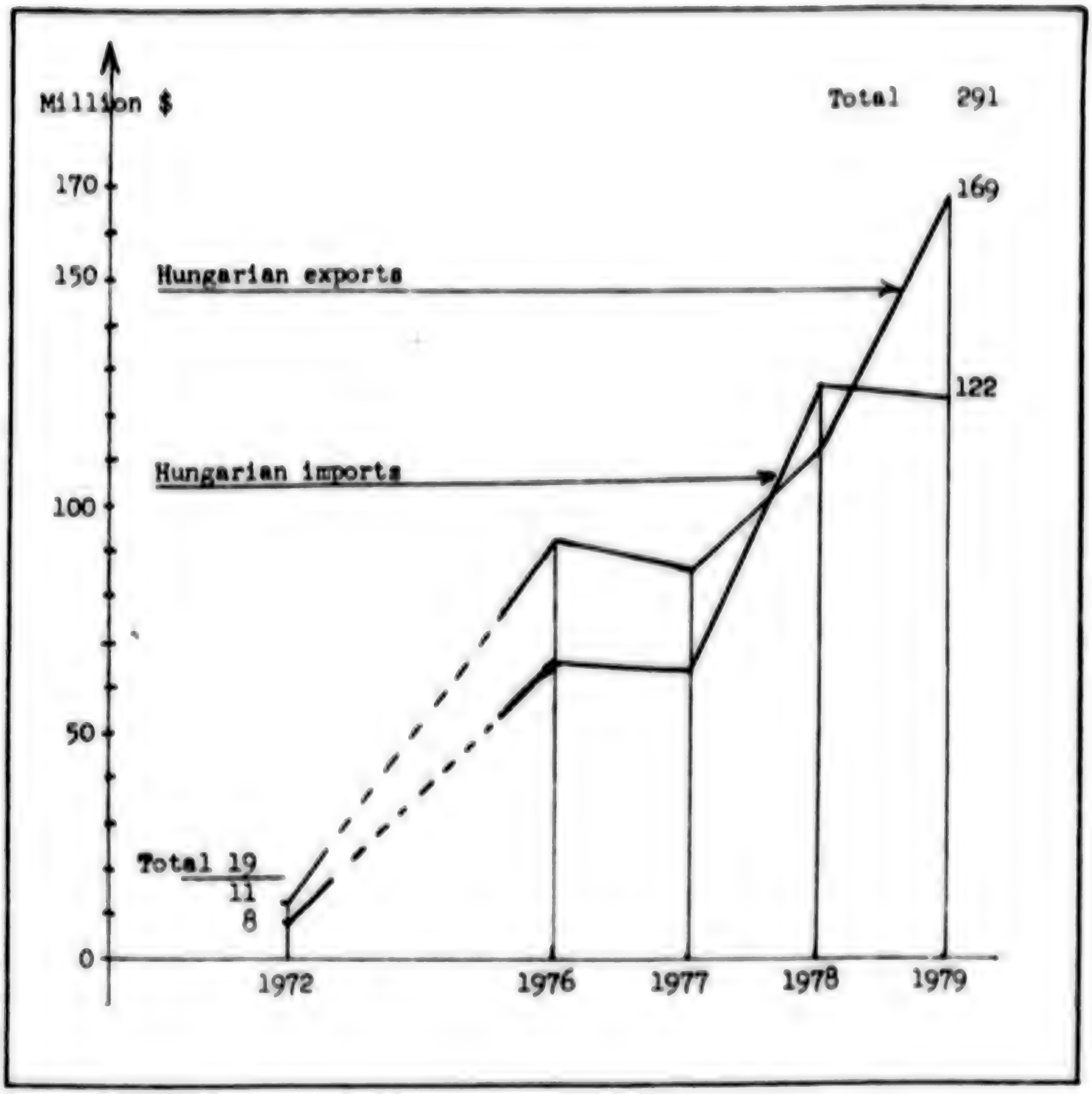
Doubled Since 1977

In addition to several joint commissions on the ministerial level (such as those on agriculture and food industry, irrigation projects, etc.), there is also a Permanent Joint Commission on Economic Cooperation, which was established in 1972 for the purposes of promoting economic cooperation between the two countries.

The complementary nature of the Hungarian and the Iraqi economies, the large-scale Iraqi economic development programs financed by the rapidly growing oil revenues, and the level of development of the various branches of Hungarian industry have all been instrumental in creating favorable bases for the further development of these relations between the two countries.

As evident from the following graph, between 1972 and 1979 the value of the bilateral exchange of goods has multiplied 15 times, and the composition of the goods has also changed significantly. Up to the early 1970's most Hungarian exports consisted of consumer goods. Since 1972, however, 50 to 60 percent of Hungarian exports are made up of machine industry products. Hungarian enterprises have participated and are still participating in several significant Iraqi economic development plans. As an

The Development of Hungarian-Iraqi Foreign Trade



example, the Babolna State Farms have delivered equipment for 10 large poultry farms geared toward the production of eggs and poultry. Up to now Hungarian drillers have put into operation 19 oil wells in the oil fields of Rumayhan and Jambur. Deliveries of Hungarian food industry equipment (e.g. canning lines, cold storage facilities, slaughterhouses, mills, etc) are also significant. Mention should also be made of Hungarian technical involvement and the delivery of Hungarian equipment for the processing of dates.

Investment Goods for Industrialization

In 1974 Hungarians were instrumental in putting a bus assembly plant into operation in al-Iskandariyah. Their contributions included the delivery of bus body parts, as well as the giving of technical advice. Today, this plant satisfies virtually all of Iraq's needs for buses. In addition to the above, up to 1976 the Hungarian auto industry had also delivered to Iraq nearly 700 buses which are now being used not only in Baghdad, but also throughout the various provinces. There is also a lightbulg factory in Taji, that has been manufactured by the Egyesult Izzo-Tungsram. A sizable portion of the electrification programs of Iraqi villages is being carried out with the aid of Hungarian substations. Recently we have also delivered lime works, as well as sulphur processing equipment. Many Iraqi health centers are using Hungarian X-ray machines and other medical equipment.

In addition to deliveries directed toward the cause of industrialization, Hungarian exports are also playing a role in supplying raw materials to the Iraqi economy, and consumer goods to its population. (These include rolled steel, aluminum products, chemicals, tomato pastes, various textile products, etc).

Most of Iraq's exports to Hungary consist of crude oil. But Iraq has also supplied for years the country's needs in edible dates. The products of the developing Iraqi industry--such as date syrup, textile products, etc--are being gradually introduced into the Hungarian markets. In the course of 1980, market weeks are also being planned both in Baghdad and in Budapest. The new Iraqi Five-Year Plan for the years 1981-1985, which is currently in the planning stage, calls for the dynamic further development of the Iraqi economy. The total sum of the planned investment exceeds $50 billion. (The projected investment for the period between 1976-1980, to be completed this year, is approximately $49 billion.) The completion of the investment plans presumes an increase in the imports. As against the earlier annual average of $4 - $5 billion, the Iraqi imports for 1980 will probably exceed $10 billion.

The above sketchily outlined conditions afford favorable opportunities for the further development of Hungarian-Iraqi economic relations, as well as for a vigorous increase in the exchange of goods. It is particularly significant that Iraq pays with cash even for complete equipment.

We must also mention that the special features of the Iraqi markets, with the rise of the 1979 Hungarian export level, place increasing demands upon Hungarian export companies, as well as upon the Hungarian industrial establishment in general. One of the basic principles of Iraqi economic policy that has been enunciated by the Iraqi Government in the course of the past few years is that the country's development must be based on the most advanced technology available. Our industry is able to satisfy this demand in numerous areas. But in order to insure the required technological level, we must also consider joint deliveries and cooperative ventures with companies from various Third World countries. (There are already numerous successful precedents for such undertakings.) It is very important that we should observe delivery obligations exactly and in line with the deadlines.

Possibilities for Increasing Exports

In assessing the above factors as a whole, our export possibilities appear favorable, especially in the machine industry area. In light of the expected Iraqi development plans and Hungarian delivery potentials, our best chance for participating in these developments exists primarily in such areas of the machine industry as are listed below. This is all the more so since--in accordance with Iraqi needs--while delivering our machines and our equipment, we can also supply Iraq with the essential construction work, as well as with the Hungarian technical know-how needed for the installation, operation and servicing of this equipment.

--equipment and complete machine systems for farms (e.g. farms for raising poultry, cattle, and vegetables and other plants);

--irrigation and water management (e.g. water works, water purifiers);

--food processing (e.g. cold storage facilities for meats and fruits, mills, slaughterhouses, canning lines);

--educational centers (e.g. trade schools, secondary schools, and institutions of higher learning);

--vehicle industry (e.g. bus parts, bus assembly, special trailer trucks, motor trains, diesel engines for railroads);

--telecommunication equipment (e.g. village telephone exchanges, URH equipment and networks, pulse code modulating equipment, etc.);

--electrification (e.g. power station equipment, substations, transformers, cables);

--complete hospitals, medical instruments, rural health centers;

--chemical equipment (e.g. pharmaceutical plants, varnish and paint factories);

--harbor equipment;

--oil well drilling, oil pipelines, automatics and telemechanics;

--aluminum industry;

--other equipment, including lime works, brick factories, foundry equipment, cable factories, garment factories, etc.

Hungarian industry is able to assure the delivery of complete systems in an ever increasing number of areas (e.g. agriculture, medical sciences, communications technology, and education).

It is still possible to increase the export of Hungarian food and other traditional products to Iraq (for example, medicines, rolled steel, aluminum semifinished products, metal mass produced goods, textile products, photographic materials, artificial leather, etc). We can also continue to count on the exportation of poultry products.

Technical Scientific Cooperation

In order to fulfill its large-scale economic development plan, the Republic of Iraq is counting increasingly upon the continued development of technical-scientific cooperation, and within it especially upon the aid of an increasing number of Hungarian experts, as well as upon the training of Iraqi experts in Hungary. Even though the technical-scientific cooperation between our two countries is only of a relatively recent origin, there are still many favorable developments in this relationship.

Under the aegis of this technical-scientific cooperation, today 37 Hungarian experts are employed in Iraq. (We are not counting the many hundreds of technical experts who are continuously on the scene in conjunction with the delivery of Hungarian equipment.) The number of Iraqi experts who are being trained in Hungary averages out to over 100 per year.

Within the confines of a more broad technical-scientific cooperation, Hungarian concerns were responsible also for having prepared the development plans for various agricultural establishments in Iraq. The high quality of Hungarian industrial, agricultural, hydraulogical, etc, planning, and the Iraqi development plans offer favorable conditions for a significant increase in the Hungarian-Iraqi technical-scientific cooperation.

In light of the good political relations between the two countries, and in view of the already existing economic ties and generally favorable relationships on the state level, as well as between individual companies, in the forthcoming period we can count on a rapid expansion of Hungarian-Iraqi economic cooperation.

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VII NATIONAL CONFERENCE ON PIG IRON, STEEL PRODUCTION OPENED

Budapest KOHASZAT in Hungarian Nos 3-4, Mar-Apr 80 pp 100-103

[Opening address by Sandor Csepanyi, deputy minister of metallurgy and engineering]

[Text] In my address at the Conference of Metallurgists I wish to acquaint the esteemed conferees with the timely problems and tasks of Hungarian metallurgy, with special emphasis on our efforts to improve the quality of our products.

The workers of Hungary's ferrous metallurgy are striving at present to successfully complete their Fifth Five-Year Plan. Parallel with this activity, our enterprises and managing organs have begun to cooperate on defining the principal tasks of the Sixth Five-Year Plan. Already now, in 1979, we are encountering specifically the difficulties placed on us by changes in the world economy. Our problems in conjunction with the procurement of coke and alloying materials are growing. In the area of marketing, intensifying world-market competition sets ever-higher quality specifications for our products.

The requirements of economic effectiveness that our planned investments must meet are increasing considerably.

The workers and managers employed in ferrous metallurgy must ensure even in this more complex situation the continuity of metallurgical production and improvement of its economic effectiveness.

Reviewing the problems of the vertical interrelations in ferrous metallurgy, I wish to emphasize first of all the situation with respect to the quality of the charge in pig iron production. Nationwide the burden yield has been around 44 percent in recent years. As we very well know, this rate is among the worst, 15 to 16 percentage points lower than the good international level. One of our most important tasks is to raise our average burden yield as soon as possible, by increasing the Fe content and reducing the SiO_2 content of the charge.

Experiments conducted at the Technical University for Heavy Industry have confirmed that the available hematite can be concentrated successfully for agglomeration, through modern magnetic separation in a strong magnetic field. Relying also on these findings, we have begun negotiations with the competent Soviet organs, on building a jointly financed concentration plant in the Krivoy Rog area. At the same time we must also investigate the economic effectiveness of importing from capitalist countries ore that has an Fe content of 65 percent minimum and a low hydrated silica content.

As a result of the investments in ferrous metallurgy, undertaken or to be completed under the Fifth and the Sixth Five-Year Plan, Hungary's output of steel and rolled steel will increase in harmony with the economy's demand. In comparison with the 3.6 million tons produced in 1975, our steel output will be 4.0 million tons in 1980, between 4.3 and 4.5 million tons in 1985, and foreseeably 4.8 million tons in 1990, which will correspond to an increase of 33.3 percent over 1975. It will be expedient to round out these figures with the annual per capita output of steel. In Hungary this output is 360 kg at present, and we will not exceed the 450-kg figure even by 1990. International comparisons, based on the statistical data for 1978, show that the per capita steel output is 158 kg in Yugoslavia, 291 kg in Bulgaria, 541 kg in Austria, and 992 kg in Czechoslovakia.

Parallel with this the output of rolled steel also will increase but at a faster rate, thanks to continuous casting machines. We can expect a 47 percent increase in output by 1990 if we take the 1975 output volume of rolled steel to equal 100 percent.

As a result of investments, the fixed capital of Hungary's ferrous metallurgy and the investment costs during the individual plan periods will develop as follows: In comparison with 32.5 billion forints in 1975, the fixed capital will increase to 85 billion forints in 1990, which corresponds to an increase of 162 percent. Investment costs under the Fifth Five-Year Plan total 25.3 billion forints, and under the Sixth Five-Year Plan they foreseeably will reach a level of between 26 and 29 billion forints.

Let us examine the productivity of live labor. The steel output per worker in ferrous metallurgy will increase from 45.7 TPY in 1975, to 52.8 forints [sic] in 1980, an increase of 16 percent. This indicator of effectiveness is very unfavorable in the light of international comparisons, because it is only one-third of the present level in Sweden, one-fourth of the level in France, and merely one-seventh of the level in Japan, the recognized world leader.

To improve our economic effectiveness and to become more competitive, we clearly must reduce our consumption of energy and materials, raise the quality of our products, and increase the volume and number of our more profitable products. In its resolution of 20 October 1977, the MSZMP Central Committee strongly emphasized these objectives and urged the economic and more competitive transformation of the production structure.

In comparison with 1975, the value of ferrous metallurgy's gross output will increase 51 percent by 1990.

Among the implemented or proposed changes in the production structure we should single out the rise in the proportion of continuously cast billets in relation to the total output of crude steel. Our continuous casting machines processed 21.4 percent of the total steel output in 1975, and more than 30 percent in 1978. This proportion will rise at a slower rate in the coming years, reaching 36.5 percent in 1985, and foreseeably 55 percent in 1990. The construction of new steel mills generally involves the installation of continuous casting machines that increase rolling-mill capacity and significantly reduce energy consumption, providing a basis for reducing the production cost of steel and rolled steel. Naturally, also the existing steel mills are converting, one after the other, to this method of casting. In Austria, for example, the proportion of continuously cast billets will increase from the present 40 percent to 71 percent by 1981, and at the same time the quantity of alloyed steel produced by continuous casting will also increase.

An important task of Hungary's ferrous metallurgy is to supply manufacturing industry with steel products of suitable quality. Therefore we are treating as a high priority topic the improvement of quality, and development of the parameters that directly or indirectly are characteristic of quality. In general, total rejects at our plants have developed in a satisfactory manner: the proportion of rejects is relatively low and shows a declining trend. In some instances, however, a plant's total rejects conceal how the individual products' proportions of rejects develop, and for this reason we investigated the causes of rejects. Accordingly, 15 percent of the products investigated in 1975-1978 was characterized by a rising proportion of rejects; 52 percent had variable proportions of rejects; and 33 percent had declining proportions of rejects. The rising, high and varying proportions of rejects obviously indicate that a modern system of quality control, one that reduces the proportion of rejects purposefully and dynamically, by reacting immediately upon production, has not been introduced everywhere as yet. In many areas, quality-control methods merely of the recording type are used to attain even the traditional, good level of quality. One of our important tasks is to implement in practice as quickly as possible, with the wider application of computers and of the methods of mathematical statistics, systems of quality control that cover the entire production process and evaluate also the customers' experience. This is the more important because the enterprises that use ferrous metallurgy's products generally do not substantiate their complaints with specific data concerning the nature and extent of the defects. Although not worded precisely in most cases, the quality complaints of the enterprises that use ferrous metallurgy's products can be summed up as follows:

In the case of hot-rolled plate and sheet, the complaints concerned mechanical properties, internal defects--mostly lamination--and mistakes in grading;

In the case of cold-rolled sheet and strip the causes of complaints were mostly off-gage and off-size material, surface defects, and deviations of the mechanical properties;

Among the complaints against spiral-welded, butt-welded and seamless tubing we might mention particularly off-gage material and mistakes in grading;

Most complaints against hot-rolled bars, sections and forgings concerned off-gage and off-size material, internal defects, and mistakes in grading;

The causes of complaints against drawn, stripped and bright-drawn rods and wire were surface and internal defects, and deviations of the mechanical properties and grain structure;

Several users are dissatisfied with the steel and iron castings, mostly because of surface defects and off-size material.

In conjunction with improving the quality of the iron and steel products, however, it should be emphasized that these efforts must be considered also from the viewpoint of economic effectiveness. The costs of maintaining extremely low quality are small, over and above the basic production costs, but the subsequent costs of repairing the rejects and settling claims are substantial. If on the other hand we aim for extremely high quality, the costs of maintaining it will be substantial, at minimal reject costs, but the total production cost will nevertheless be high. Optimal quality, from the viewpoint of cost, can be found somewhere between these two extremes. Taking all this into consideration, on the basis of the realistic quality complaints of manufacturing industry that processes iron and steel prodcuts we may say that the quality of many of our products has to be improved.

We will commission two converter steel plants during the first years of the Sixth Five-Year Plan. We expect our metallurgical workers to become well trained at these plants, for the rapid introduction of a technology that is new in our country, and to solve the production of steels of uniform quality that have narrow tolerances with regard to their composition. It will be the task of the managers in iron and steel production to carefully select the installations that can contribute significantly toward improving the quality of our products. At the Danube Iron Works, for example, a modern installation will be commissioned already this year, for ladle finishing. The "Scandinavian lance" process is based on blowing a powdered deoxidizing agent or flux into the melt, by means of an inert gas, to lower the sulfur content below 0.005 percent and to ensure a very low oxygen level. By this method it is possible to produce sheet that has quasi-isotropic strength characteristics, excellent toughness even at low temperatures, inclusions of favorable shape, and a low proportion of inclusions. Sheet of this grade is new in Hungary. It poses a serious task for designers of machinery and other installations, and it could provide a new impetus for designing structures of lighter weights, for the more efficient use of steel.

The ASEA-SKF ladle finishing facility to be installed in the integrated steel mill at the Lenin Metallurgical Works will provide the most modern conditions for making excellent grades of steel and alloys that have a low gas content and are highly inclusion-free.

With this equipment it will be possible to make also low-carbon steels with a carbon content of 0.03 percent maximum. This will provide, among other things, the foundation for supplying the demand for nonstabilized stainless steels used for chemical-industry equipment. The production of cryogenic steels, particularly of the 9 percent Ni grade with a low hydrogen content, could be an important contribution to equipment for the transport and storage of domestic natural gas, and also for the chemical industry.

It would be expedient to carefully weigh already now the cooperational opportunities under which the other domestic ferrous metallurgy enterprises could obtain for their own use, from LKM [Lenin Metallurgical Works], special high-grade steels or alloy components. This could be one way of substituting at least partially the import of high-grade steels from capitalist countries, the volume of which at present is about 25 million dollars. Of course, we must uncover opportunities also in other areas.

To further improve the quality of our iron and steel products, we must devote attention to influencing by modern means the crystallization of continuously cast steels. One such method, for example, is electromagnetic stirring. In our continuous casting machines, therefore, it is necessary to investigate also the feasibility of using electromagnetic stirring. Startup of a pilot plant at the Iron Industry Research Institute will be a significant step toward the domestic introduction of electroslag remelting.

It will be expedient to acquire automatic ultrasonic inspection equipment to detect internal structural defects in our products.

The ferrous metallurgy enterprises' purposeful efforts to upgrade quality will be successful if they significantly improve and develop further their relations with the enterprises that use ferrous metallurgy's products. The experience that the manufacturing plants gain in conjunction with the quality of our products must be valuable indications for technological modifications in ferrous metallurgy, in the interest of reducing the proportion of rejects. In other words, we must strive for cooperation that maximally takes into account the interests and possibilities of both sides and serves to improve the quality of the products of both ferrous metallurgy and manufacturing industry.

Further tasks in conjunction with improving quality are as follows:

The strength of structural steels must be increased, without reduction of their toughness and weldability;

The surface quality of rolled stock must be improved, and its dimensional tolerances must be narrowed;

Internal defects in forgings must be eliminated, and their allowances must be reduced;

The assortment of spheroidal graphite cast iron and of special alloyed iron and steel casting must be broadened.

We are confident that the Hungarian iron and steel workers' century-old traditional social cooperation will help us resolve also the new tasks with which we are confronted. This is cooperation within which the managing central organs, the service institutes and enterprises, and the voluntary scientific and social associations help the production plants.

The research program that serves the technical and technological development of our ferrous metallurgy can be one of the important areas of cooperation. This program dovetails without national economic objectives. Outstanding within it are the research and the license and know-how adaptation tasks that will enhance savings of energy and the improvement of quality.

A significant reduction of the specific energy consumption in the technologies of ferrous metallurgy is warranted also by the fact that ferrous metallurgy accounts for 15.2 percent of the national economy's total energy consumption.

In 1980 ferrous metallurgy's consumption of the more important fuels and electricity is expected to develop as follows:

Natural gas	$900 \cdot 10^6$ m^3 (NTP)
Oil	$200 \cdot 10^3$ tons
Coke	$2 \cdot 10^6$ tons
Electricity	2 GWh

If we include also thermal energy, the energy consumption per ton of rolled steel is of the order of 7.5 Gcal, which is 25 to 30 percent higher than the energy consumption in the countries with the most advanced metallurgical industries. In terms of saving energy, the principal directions of this R & D program are as follows:

Optimal consumption of domestic and imported coal, by modernizing the technology of coking;

In pig iron production, the introduction of technologies that reduce coke consumption;

Improvement of the energy balance in steelmaking;

Modernization of the heating furnaces at metalworking plants; and

Modernization of the annealing furnaces.

In many respects the recently completed investments and the development projects that are in progress will provide the technical conditions for improving the utility characteristics of our products, but this in itself is not enough! On the one hand we must master the expedient utilization of the new installations' technical characteristics. And on the other hand we must modernize also the metallurgical refining technology of the old steelmaking plants.

The present conference, sponsored by the Pig Iron Production Special Group and the Steelmaking Special Group within the Ferrous Metallurgy Section of the Hungarian Mining and Metallurgical Association, is proof of the voluntary technical associations' willingness to cooperate and help. The conference has placed on its agenda very important topics that directly affect the development of Hungary's iron and steel industry. I am certain that at this conference, in the same way as at the preceding conferences, our experts on pig iron production and steelmaking will be able to broaden their knowledge, to our mutual benefit, and that we will hear proposals which will facilitate the work of the central organs that manage our iron and steel industry.

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SPECIALIST EVALUATES STEEL PRODUCTION

Budapest KOHASZAT in Hungarian Nos 3-4, Mar-Apr 80 pp 105-107

[Introductory address by Dr Janos Sziklavari, head of the Steelmaking Special Group, in the proceedings of the Steelmaking Section]

[Excerpt] Hungarian steelmaking can be listed at present among the leading countries only in terms of the proportion of coninuous casting. Finishing of the steel outside the furnace is limited merely to inert-gas mixing and to vacuum degassing of low effectiveness. There are no installations whatsoever for the controlled crystallization of larger ingots.

Investments in steel plants will provide for our steel industry injection equipment at Dunaujvaros, a complete ladle finishing system in Diosgyor, and additional continuous casting machines. We hope that also the steel mills in Ozd and Csepel will soon introduce the effective injection technology, and that Diosgyor will be able to build an installation suitable for the controlled crystallization of large forging ingots. The experts responsible for development will soon be able to convince themselves of the advantages of the injection technology also at home, at the Danube Iron Works; it will be unnecessary to extol this technology on this occasion. However, the same cannot be said about the technology for the controlled crystallization of large ingots! We must emphatically praise this technology also on this occasion. Not because all industrialized countries other than Hungary already have such technology (most of them employ the electroslag process), but because it can dramatically improve the quality of our forged products. Technologically a crystallizing installation can compensate for possible delays in the modernization of the forge shops, because its effect on quality is the greater.

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DEVELOPMENT POSSIBILITIES AT DANUBE IRON WORKS EXPLORED

Budapest KOHASZAT in Hungarian Nos 3-4, Mar-Apr 80 pp 108-115

[Report by Dr Gellert Repasi, deputy director general of the Danube Iron Works: "Questions of Developing Pig Iron and Steel Production at the Danube Iron Works"]

[Text] Relationship between the production capacity of the sheet mills and the establishment of the new converter steel plant. Raw material and energy base for the increase of production. Supply of pig iron for steelmaking. Utilization of new technological advances in pig iron and steel production. Application of the oxygen lance in open-hearth and converter steelmaking.

Introduction

If we take also the current modernization into account, the capacity of the Danube Iron Works' wide-strip mill is 1.5 to 1.6 million tons, depending on the degree of reduction. Our plate mill is able to roll into plate about 250,000 tons of slabs. In both cases we took slabs 240 mm thick, weighing between 8 and 10 tons for the wide-strip mill. In this stage, then, the capacity of our rolling mills permits the processing of 1.75 to 1.85 million tons of slabs. These figures include also the rolling of between 200,000 and 250,000 TPY of ingots.

The capacity of both mills can be increased significantly, by continuing the modernization of the wide-strip mill, and by reducing the thickness of the slabs, respectively by increasing their weight. The rolling-mill capacities created in this manner (at DV [Danube Iron Works] and LH [Lorinc Rolling Mills] jointly) could exceed even 2.5 million tons. Here we no longer include the rolling of ingots.

The first stage represents the foreseeable future. The marketing or further processing of the products rolled from the 1.75 to 1.85 million tons of stock seems to be ensured even without significant additional investments; moreover, today this can be achieved in far more favorable variations than what we had presented in our investment proposal that was approved in 1978.

Custom processing, the volume of which is increasing even today, will fill the gap between our rolling-mill capacity and own steel output, which is still only 1.2 million tons at present. No particular explanation will be necessary to understand why it is not advantageous to load with custom processing 25 to 30 percent of a given rolling-mill capacity.

To eliminate the 500,000 to 600,000-ton shortage of stock for rolling, a converter plant with an annual capacity of 1.1 to 1.2 million tons will be built. The plant's three converters will be operated on a 2/1 basis [two in operation, one standby]. The heat size of each converter will be 130 t. Simultaneously the output of the open-hearth plant, the present capacity of which is 1.2 million tons, will be cut back to between 0.6 and 0.7 million tons. Plant capacity would permit the production of even more steel, but a prerequisite for this would be a higher increase in the output of pig iron than what has been planned.

It is understandable that the state officials in charge of managing the economy responded to the investment proposal by questioning the effectiveness of this investment. Their questions can be summed up briefly as follows: Is the material and energy base for the 0.5-million-ton increase in steel output adequately ensured, and will the expected production and sales be able to offset the substantial investment costs without any deterioration of the Danube Iron Works' present results? In my report I will attempt to prove that practical application of the recent scientific and technological advances in the production of pig iron and steel will permit the production of rolled stock that will be competitive--even when measured in terms of the world market's value judgment--and will significantly improve the economy's balance of trade. At the same time we will be able to offer domestic users several new grades of steel, and we will also be able to reduce considerably our existing import of sheet and strip.

Material and Energy Base of Increased Production

The state reports and approvals concerning the establishment of the converter steel plant determine the sources of not only the means of production but also of the quantities of materials and energy required for production. In the meantime, however, the prices of materials and fuels have continued to climb rapidly. Responding to price movements on the world market, our system of economic regulation is introducing as of 1980 certain changes in the system of producer prices. According to our computations, materials and energy will account for 85 percent of the production cost at the Danube Iron Works. These are pressing reasons to investigate whether under the altered conditions an increase in the steel output has realistic foundations that ensure economic production. We in turn formulate this question as follows: What scale of material and energy savings can ensure competitive production by the standards of the world market?

The development of energy savings to date at the Danube Iron Works is shown in Fig. 1. As evident from this diagram, the consumption of primary sources of energy has remained essentially unchanged since 1965, even though the output has more than doubled. The quantity of purchased coking coal will increase after the commissioning of the converter plant and coking plant, but at the same time the quantity of salable energy will increase, and this will drastically reduce the indicators of specific energy consumption. On the basis of these considerations it seems realistic that we will be able to attain our objective of increasing the output of rolled steel while maintaining unchanged the net energy consumption.

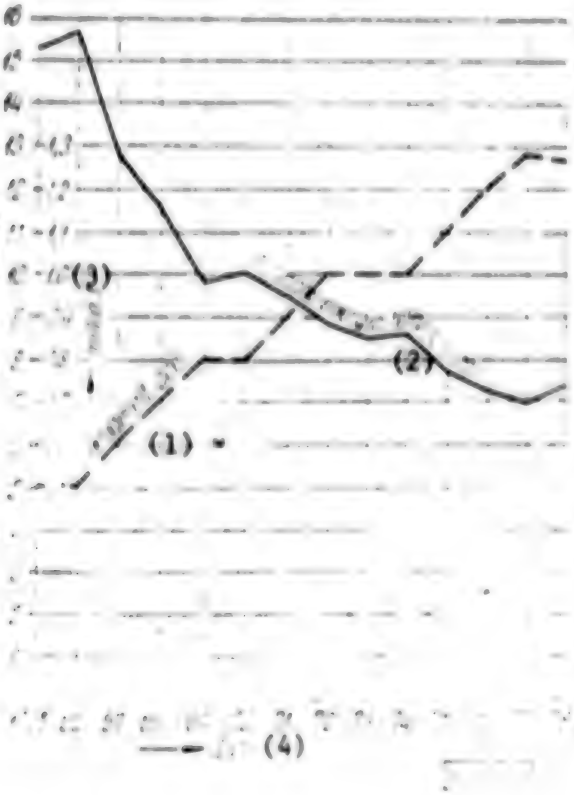


Figure 1. Development of energy consumption in terms of rolled steel.

Key: 1. Rolled steel
2. Specific energy consumption
3. Million tons
4. Year

Realization of this objective is enhanced to a large extent by the fact that increase of the steel output at the Danube Iron Works can be implemented very flexibly from the viewpoint of the consumption of materials and energy. In our open-hearth plant the specific consumption of pig iron at present is 700 kg/t, and the specific consumption of scrap is 420 kg/t. These values have remained nearly constant for years, nor can they be changed significantly--for reasons we need not dwell on at present. After the commissioning of our converters, the specific consumption of 1120 kg/t will drop below 1100 kg/t. Furthermore, the flexibility of total steel production will change considerably in terms of the composition of the charge. This flexibility is shown in Table 1, within the metallurgically feasible limits. The table confirms that the total steel output's specific scrap consumption may attain a more favorable value than at present, because our open-hearth furnaces will be transformed into scrap-melting units. Simultaneously the conditions can be ensured that will enable us to operate our converter plant at a specific scrap consumption of about 350 kg/t. On the basis of the data in the table it can be estimated that the specific scrap consumption could reach even 490 kg/t, if the national balance of scrap resources and allocations would permit such an increase. This flexibility not only allows faster adjustment to changes in the conditions of supply and demand on the world market, but it also permits the offsetting of the losses arising in conjunction with the repair of capital equipment.

Reduction of the output of open-hearth steel to approximately 600,000 tons will require the continuous operation of only three open-hearth furnaces, even if we use only solid materials in the charge and reduce the heat size to between 150 and 160 tons. One open-hearth furnace would be kept in constant reserve. But if under this mode of operation we use 350 kg of hot metal per ton, the output would increase to 800,000 tons.

If we investigate from the viewpoint of energy consumption our steelmaking system comprised of open-hearth furnaces and converters, we come to a surprising conclusion. This is evident from Table 2.

Table 1. Metallurgically Feasible Limits of Scrap and Pig Iron Consumption in Open-Hearth and Converter Steelmaking

	Open hearth	Converter	Scrap consumption	
			Maximum	Minimum
Scrap, kg/t	750	350		
Output, 1000 TPY	600	1100	835/1035*	515/1355*
	600	1400	940/1260*	590/1610*

*Consumption of pig iron

From the summary in Table 2 it is evident that the increase of steel production from 1.2 to 1.7 million tons will result in absolute savings of 171 TJ. If we take into account also the energy saved by utilizing the converter plant's flue gas, the annual savings amount to 1550 TJ. As can be seen from the table, we included the energy demand for the production of the oxygen, as well as the fuel needed to preheat the 350 to 370 kg/t of scrap to 500 °C in the converter. Considerably more energy could be saved if we were able to use waste heat for preheating.

And if we are able to achieve also our objective of increasing the output of pig iron by about 200,000 TPY at only a slight increase in the annual coke consumption, then we may safely say that the Danube Iron Works can produce 500,000 tons more steel while maintaining the present level of its annual net energy demand.

Table 2. Development of Energy Consumption in Steelmaking

	Tar oil	Nat. gas	Jointly	Annual consumption	
	(Gcal/ton)			Tcal	(TJ)
For $1176 \cdot 10^3$ tons of open-hearth steel produced in 1978:					
Furnace	0.28	0.38	0.66	780	(3260)
Other	-	-	0.03	35	(146)
Jointly	0.28	0.38	0.69	815	(3406)
Fuel for oxygen production ($47\ m^3/t$ at NTP)				119*	(497)
Total energy demand of open-hearth steelmaking				934	(3904)
For $600 \cdot 10^3$ TPY of open-hearth steel, using solid charge:					
Furnace	0.30	0.80	1.10	660	(2759)
Other	-	-	0.02	14	(58)
Jointly	0.30	0.80	1.12	674	(2817)
Difference between processes				260	(1087)
For converter steelmaking ($1.1 \cdot 10^6$ TPY):					
Preheating of scrap ($10\ m^3/t$ natural gas, NTP, 350-370 kg/t preheated to 500°C)			0.08	83	(388)
Fuel for oxygen production ($53\ m^3/t$ at NTP)			0.11	126*	(526)
Other			0.02	-	
Jointly			0.21	219	(914)
Fuel saved by utilizing converters' flue gas				330	(1379)
Summary:					
Open-hearth steelmaking in 1978				934	(3904)
$600 \cdot 10^3$ open-hearth steel + $1.1 \cdot 10^6$ converter steel				893	(3721)
Savings in steelmaking				41	(171)
Savings by using converters' flue gas				330	(1379)
Total savings				371	(1550)

*0.9 kWh/m^3 at NTP; 2400 kcal/kWh

The situation is similar with respect to refractories, the other substantial cost item in steelmaking. Development of the maintenance costs of our open-hearth plant is shown in Table 3. From the data in this table it is evident that the total maintenance cost nearly doubled from 1971 to 1978, and that renovation of the brickwork and structure accounts for the bulk of the total maintenance cost. The costs of mechanical and electrical maintenance are commensurate with the increase in output and with the rise in the prices of spare parts. One of our basic objectives is to ensure that the 0.5-million-ton increase in steel output be not burdened by higher maintenance costs than what we anticipate for our open-hearth plant in 1980. Strict economy in the use of refractories is a prerequisite for achieving this objective. The attainable results are reflected in Table 4. As can be seen from this table, our consumption of every type of refractory material will decline, despite the 0.5-million-ton increase in steel output. Realization of this objective, however, presupposes the following:

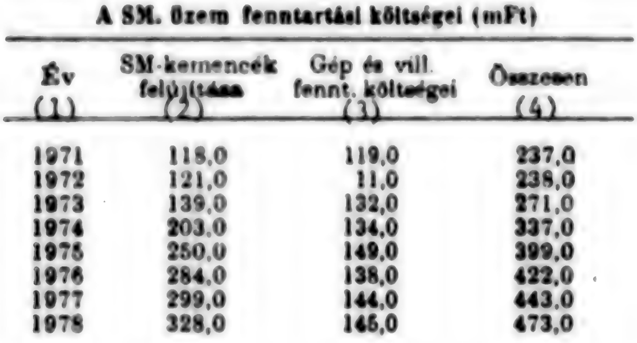
The quality of the employed, mostly basic, refractory materials will conform to the modern level, regardless of whether these materials are domestic-made or imported;

The time available for relining will result in a significant improvement in the quality of relining;

The latest results of scientific research into the metallurgical processes, primarily into curbing slag-caused corrosion, will be applied in practice;

Our output of ingots will not increase above the 1979 level.

Table 3. Maintenance Costs of the Open-Hearth Plant (Million Forints)



A SM. üzem fenntartási költségei (mFt)

Év (1)	SM-kemencék felújítása (2)	Gép és vill. fennt. költségei (3)	Összesen (4)
1971	118,0	119,0	237,0
1972	121,0	11,0	238,0
1973	139,0	132,0	271,0
1974	203,0	134,0	337,0
1975	250,0	149,0	399,0
1976	284,0	138,0	422,0
1977	299,0	144,0	443,0
1978	328,0	165,0	473,0

Key:		
	1. Year	3. Mechanical and electrical maintenance costs
	2. Relining of open-hearth furnaces	4. Jointly

Table 4. Changes in the Consumption of Refractory Materials if the Steel Output Increases to 1.7 Million Tons

A tűzállóanyagok szükségleteinek változása az acéltermelés 1,700 ezer tonnára való emelkedése esetén

	Nyers dolom. (1)	Égetett dolom. (2)	Magn. szemcse (3)	Felszóró anyag.k. (4)	Bázikus tégla (5)	Samott kem.t. (6)	Samott üst t. (7)	Döngölt homok (8)
(9) SM acél								
(10) Össz. 1978. t.	52 000	20 000	11 000	2800	14 900	6300	6800	14 000
kg/t	44,0	17,0	10,0	2,5	12,66	5,35	5,7	12,0
SM acél (11) 600 ezer t/év								
Össz. t.	12 000	6 000	6 000	900	4 800	1800	1800	4 800
kg/t	200	10,0	10,0	1,5	8,0	3,0	3,0	8,0
(12) Konv. acél 1,100 et/év								
Össz. t.	—	—	—	1700	2 700	1100	2200	5 500
k /t	—	—	—	1,5	2,5	1,0	2,0	5,0
(13) Össz. felh. t.	12 000	6 000	6 000	2600	7 500	2900	4000	10 300
(14) Fajl.felh. kg t	7,0	3,5	3,5	1,5	4,4	1,7	2,35	6,5
(15) Becsült meg-takarít. t/év	40 000	14 000	5 000	200	7 400	3400	2800	3 700

Key:
1. Crude dolomite
2. Sintered dolomite
3. Grain magnesite
4. Slurry constituents
5. Basic brick
6. Fireclay brick for furnace
7. Fireclay brick for ladle
8. Rammed sand
9. Open-hearth steel
10. 1978 total tonnage
11. Open-hearth steel, 600,000 TPY, total tonnage
12. Converter steel, 1.1 million TPY, total tonnage
13. Total consumption, tons
14. Specific consumption, kg/t
15. Estimated savings, TPY

Table 5. Consumption of Refractories for Converter Linings

	1	2	3	4	5	6	7	8	9 sz. üzem (1)
(2) Béléstartósság (adag)	1709	1034	1073	1474	503	1806	1233	1163	581
(3) Munkabélés felhaszn. kg/t	0,91	1,50	1,6	0,6	3,91	1,11	1,64	1,5	3,1
(4) Döngölőanyag felh. kg/t	0,03	0,04	0,05	—	—	—	—	—	0,5
(5) Biztonsági bélés fh. kg/t	0,13	0,05	0,15	0,02	0,39	0,16	0,11	0,2	0,55
(6) Javító anyag felh. kg/t	1,23	1,41	1,8	1,71	1,27	1,16	1,16	1,1	1,3
(7) Átfalazási idő ó	146,8	137	104	128,9	102	187,8	237,7	286	216
(8) Átlagos adagsúly t	256,8	187,2	175,6	147,4	93,9	245,3	161,3	271	110,5

Key:
1. Converters Nos 1-9
2. Service life of lining (heats)
3. Consumption of working lining, kg/t
4. Consumption of rammed material, kg/t
5. Consumption of safety lining, kg/t
6. Consumption of patching materials, kg/t
7. Relining time, hours
8. Average heat size, tons

To insure the realization of these objectives, in our open-hearth plant the heat size will be reduced by 15 to 20 tons; and the quantity of slab, by 60 to 70 percent; furthermore, no oxygen will be added, and one open-hearth furnace will serve as constant standby capacity. As proof that the consumption of refractories planned for our converter plant is realistic, we offer a comparison of the data for the nine converters that operate at a modern level (see Table 5). This table reflects the changes in the quality of refractories, the spreading use of the slurry-spraying technology, and also the present level in the mechanization of relining. The data in Tables 3 and 4 justify our expectation that the maintenance cost of steelmaking will remain at the present level despite the startup of the converter plant, and also that we need not anticipate any increase in manpower requirement for maintenance, materials handling, storage and stockpiling.

The situation is not so favorable with respect to the consumption of alloying materials. Total consumption of alloying materials in our open-hearth plant in 1978 was 20,150 tons or 17.1 kg/t. This high specific consumption reflects the large proportion of low-alloy products within the output (plate and tubing of high purity), and it also calls attention to the task of finding new ways to reduce the loss of alloying materials due to burning.

The distribution according to types of alloying materials used is as follows: FeMn, 9.5 kg/t; FeSi, 2.5 kg/t; Al, 1.1 kg/t; FeSiMn, 2.5 kg/t; and the balance consists of alloying materials containing V, Nb and rare-earth metals. Even today a proportion of the consumption is supplied through import from capitalist countries, and the FeMn, CaSi, FeSiMn, V, Nb, FeCr and Ni needed for the increase in output can be procured only from capitalist countries. However, the cost impact of this import can be reduced through new metallurgical methods that aim to drastically curtail the slag-induced oxidation losses.

In recent months the outlines have begun to emerge of the feasibility of supplying the increased FeMn demand by reducing our Mn oxide ores. The ladle-finishing processes will increase the consumption of Ca-Si and other complex alloying materials, but at the same time it will be necessary to crush these alloying materials and to produce specified grain fractions.

The production of such fractions is ensured by the fact that we will solve the crushing, grading, storage and conveyor-belt handling of the alloying materials simultaneously with the construction of our converter plant.

Development in the direction of exporting more-valuable products would require that we export also alloyed sheet. But if the alloying materials for this purpose can be obtained only through import from capitalist countries, the economic effectiveness of such export might become questionable. Therefore we must continue to seek possible ways of producing alloying materials based on domestic raw materials or on socialist integration.

Supply of Pig Iron for Steelmaking

Ironmaking experts are fully aware that the technical-economic indicators of pig iron production lag significantly behind the values that are now feasible. The extent of this lag is best illustrated also at the Danube Iron Works by a difference of 200 to 25o kg/t in the specific coke consumption.

In conjunction with supplying pig iron for the converter plants under construction, this question has been emphasized in recent years in studies and reports, before several forums.

It is also true, however, that the processes and methods already elaborated for developing the technology of ore preparation and pig iron production would have to be introduced--after adapting them to our natural conditions--even if, for example, we did not want to increase our output of pig iron. Profound economic analyses are unnecessary to perceive what benefits our economy could derive from such advantages as the significant savings of energy, the rapid rise of labor productivity, the lower costs of protecting the working and natural environments, etc.

To illustrate: We are familiar with the data of the 1000 m^3 blast furnace in Cherepovets, and we know that its annual output is slightly more than the combined annual output of the two 960-m^3 blast furnaces at the Danube Iron Works.

The geographic location of the Danube Iron Works places it in a favorable position to produce pig iron that can be competitive even on the world market. Thanks to the proximity of the Mecsek coal basin, and to the feasibility of transporting by water its substantial coal reserves and the iron ore, the Danube Iron Works would be able to produce pig iron at lower cost than the other iron works in its vicinity, even if the energy costs were identical. We have already taken several steps toward becoming competitive, but even so our lag is still significant. The concluded Hungarian-Soviet intergovernmental agreement for the supply of an agglomerating plant, and the technological investments in conjunction with the construction of the converter plant already represent significant progress. We demonstrate this in terms of the technical-economic indicators in Table 6, projecting also the future possibilities. Aside from the 200,000-ton increase in pig iron production, progress is evident in that the additional coke required for this purpose is barely 30,000 TPY. Technological progress manifests itself essentially in a drastic reduction of the agglomerate's dust content, in the better-grade coke that can be obtained simultaneously with the coking plant's modernization, in the increase of the blast temperature by 100 to 150°C, and in the moderate increase of the top pressure and the blast's oxygen enrichment. Even so we will have to melt 780 kg of slag per ton. This situation will ensure fulfillment of the steelmaking targets set for the Sixth Five-Year Plan.

Table 6. Development of the More Important Technical Indicators of the Blast Furnaces at the Danube Iron Works

Megnevezés (10)	1978 év (11)	Új zsugorítóművel (12)	Javított elegyviszonyok mell. (13)
1. Kohótérfogat m^3	1910	1910	1910
2. Ny.vastermelés et/év	825	1030	1400—1500
3. Elegykihozatal (szállópor nélk.)%	47,0	49,0	60,0
4. Fajl. kokszfogy. (nedves) kg/t	668	570	450—560
5. Fúvószél hőmérs. °C	985	1150	1300
6. Fúvószél oxig. tart. %	21	23—24	30—32
7. Szénhidrogén befúvás			
(8) — Olaj, kg/t	42,3	75—80	—
(9) — Földgáz, Nm^3/t	—	—	200

Key:

1. Working volume, m^3
2. Pig iron production, 1000 TPY
3. Burden yield (excluding blast-furnace dust), percent
4. Specific (wet) coke consumption, kg/t
5. Blast temperature, °C
6. Oxygen content of blast, percent
7. Hydrocarbon injection
8. Oil, kg/t
9. Natural gas, m^3/t at NTP
10. Designation
11. In 1978
12. With new agglomerating plant
13. At improved burden ratios

Table 7. Development of the Coke Demand at the Danube Iron Works

Megnevezés (4)	1978 évi tény (5)	Új zsugorítóművel (6)	Javított eleggyel (7)
1. Kohókoksz ny. vasgyártáshoz et/év	552	590	675
2. Aprókoksz zsugorításhoz et/év*	64+22=86	96	96
3. Szénpor zsugorításhoz et/év	30+11=41	41	41

* A vásárolt zsugorítmány figyelembevételével.

Key:

1. Metallurgical coke for pig iron production, 1000 TPY
2. Coke breeze for agglomeration, 1000 TPY (taking the purchased agglomerate into account)
3. Pulverized coal for agglomeration, 1000 TPY
4. Designation
5. 1978 report data
6. With new agglomerating plant
7. With improved charge

The coke demand of pig iron production (Table 7) could be covered even from our present coke output. The coking plant to be built with a capacity of 1.0 million tons will add about 300,000 TPY to the supply of domestic demand for coke, primarily for our sister plants. The dry coking technology that will be installed in the new coking plant will further reduce the absolute energy demand by 40 tons of steam per hour.

In the interval between the completion of the new agglomerating plant and the running-in period of the converter plant we intend to insure the burden ratios by increasing the proportion of scrap.

Our ironmaking experts have estimated the improved technical indicators that can be achieved through the further adaptation of the results of developing our pig iron production. These indicators are presented in the third column of Table 6. They represent the economic advantages that can be attained through the successful conclusion of the Hungarian-Soviet negotiations for the procurement of iron-rich ores or enriched ores. The economic advantages will be apparent predominantly in a reduction of the specific coke consumption to between 450 and 460 kg/t, while at the same time the output of pig iron could reach 1.5 million tons. The coking plant to be built will still be able to amply supply the 675,000 to 690,000 tons of coke per year required for this output. In this case, at an increase of barely 100,000 tons in coke consumption, the annual output of pig iron can be increased by 450,000 tons. The supply of coal to produce 1.0 million tons of coke per year will still not require the opening of new mines, provided we can maintain at the present level the import of coal from socialist countries. By introducing the practice of preheating the coke, also the domestic base of coking coal can be expanded, and the coke output can be increased to 1.1 million tons. If sufficient coal is available, one of the shut-down coking batteries could perhaps be reactivated.

However, the third column of Table 6 does not yet reflect the complete adaptation of our development results to date. A burden yield of 58 to 60 per cent, a blast temperature of 1300°C, and the injection of 200 m^3 of natural gas per ton (at NTP) represent considerable progress. But still unutilized is the effect of such essential technological changes as ore averaging, screening out before the top the ore particles less than 5 mm in size, increasing the top pressure to between 1.8 and 2.5 atm, computerized process control, and also the results of R & D now underway. One such result, automatic measurement and control of the coke's moisture content, could find practical application in the near future. However, we must reckon also with the fact that the increased output will require simultaneous modernization of the materials handling and charging systems.

Utilizing Scientific and Technological Advances in Developing the Production of Pig Iron and Steel at the Danube Iron Works

In the following I wish to dwell on the utilization of the advances in science and technology, because I am convinced that in this way we are able to supplement our lacking material and energy resources at the lowest outlays but with the greatest economic effectiveness.

In the area of ore preparation, for example, the quality characteristics of the agglomerate from the agglomerating plant to be built will change as shown in Table 8. The 5 percent maximum proportion of ore particles less than 5 mm in size, and the disappearance of 250-mm ore lumps will represent great progress in comparison with our present situation, and this will be further enhanced by the advantages of charging at ambient temperature. These changes are due to the application of two-layer charging, heat-treatment-like cooling of the agglomerate, double screening and methods of cooling. Further possibilities lie in using larger quantities of quick-lime --this will be made possible by the lime kiln to be built for this purpose-- and in narrowing the variations in the chemical composition of the aggregate by ore averaging. It would be a great advantage if the Hungarian-Soviet negotiations lead not to the production of Krivoy Rog concentrate but to the feasibility of using rich agglomeration ores. Such an agreement would not reduce the production capacity of our agglomerating plants, but our domestic investment costs would be lower. The energy efficiency of these changes will be enhanced by the advantages arising from the quality of the coke (Table 9), and particularly from a favorable reduction of the coke sizes. We regard the 12,5 to 13.5 percent ash content, and the 1.5 percent S content as additional metallurgical costs resulting from our reserves of coking coal. However, this should not hamper utilization of our reserves of coking coal, because the by-products of washing the coal, for the purpose of reducing its ash content, can be used efficiently to generate electricity, and the harmful effects of the approximately 1.5 percent S content can be offset by already known metallurgical methods. And the sulfur extracted from the coke gases provides a way to supply our demand for sulfuric acid.

Table 8. Quality Indicators of the Agglomerate at the Danube Iron Works

A zsugorítvány minőségi mutatói a DV-ben

Megnevezés (7)		1978. évi tény (8)	Új zsugorítóművel tervezett (9)	Javított eleggyel (10)
1. Vegyi összetétel %				
	Fe	47,0	49—50	59—60
	SiO_2	11,7	18,8	6—7
2. Bázicitás $\frac{CaO+MgO}{SiO_2}$		1,30	1,25	1,2—1,3
3. Portartalom (5mm alatti szemnagyság részaránya %)				
(3a) átlag		18	max. 5	max. 5
(3b) ingadozás		10—30	—	—
4. Max. szemnagyság, mm		250	50	50
5. Zsugorítvány hőmérséklet, °C		izzó (6)	max. 100	max. 100

Key:

1. Chemical composition
2. Basicity
3. Dust content (proportion of particles less than 5 mm)
3a. Average, percent
3b. Variation, percent
4. Max. particle size, mm
5. Agglomerate temperature, °C
6. Red-hot
7. Designation
8. 1978 report data
9. Planned with new agglomerating plant
10. With improved charge

It is a known fact that the effectiveness of technological changes to increase the production rate of the blast furnaces is closely related to the quantity of slag that was to be melted. Most technological changes are the more effective, the less slag there is to melt. From 1978 through 1981 we will be investing about 650 million forints to develop our technology for the production of pig iron. This includes 350 million forints for investments related to the converter plant. With the commissioning of a new turbo-blower plant we will ensure the conditions for employing a top pressure of 1.5 atm also in our No 1 blast furnace. Reconstruction of the heating stoves will enable us to raise the blast temperature to 1250°C, even though the selected solution--i.e., the use of heating stoves with external shafts--is still not the most modern one. Our unfavorable burden ratios compelled us to make this compromise. A further great step ahead is the oxygen-enrichment of the blast to an oxygen content of 30 to 32 percent. We have already introduced evaporative cooling in one of our blast

Table 9. Quality Indicators of Metallurgical Coke

Időpont (1)	(2) Szemnagyság mm	(3) Dobszilárdság %	(4) Morzsalékonyság %	Hamu (5) %	Nedv (6) %	Kén (7) %
(8) Jelenleg, és 1983-ig	40—80	78—82	5,5—6,5	12,5—13,5	3—4	1,45—1,55
(9) Az új blokk belépése után	30—70	78—80	5,0—6,0	12,5—13,5	3—4	1,45—1,55
(10) Száraz kokszoltás bevezetése után	30—70	80—82	5,0—5,5	12,5—13,5	0	1,45—1,55

The introduction of dry coking will permit the addition of about 10 percent coal of low coking capacity, without any deterioration of coke quality.

Subsequent introduction [illegible] coal preheating will permit the addition of about 30 percent coal of low coking c

Key:

1. Period
2. Size, mm
3. Tumbler-test strength, percent
4. Friability, percent
5. Ash content, percent
6. Moisture content, percent
7. Sulfur content, percent
8. At present and until 1983
9. After startup of new coking battery
10. After introduction of dry coking

furnaces, with significant savings of energy. Redesigned tuyeres--with a service life several times longer than that of the present ones-will be installed in the near future, on the basis of a Sovet license. To increase the frequency of tapping and to lengthen the service life of the tapholes and runners, it will be necessary to use new refractory materials. We know of runner-ramming compounds that permit the tapping of even more than 100,000 tons of hot metal. At the same time also the tedious work of chipping the runner lining will be mechanized. We have prepared plans to use the blast-furnace slag for road construction, and to recover the Fe and refractory materials from the slag dumps.

Steelmaking by the converter process stipulates well-known quality requirements regarding the chemical composition of the hot metal and its temperature. Certain computations lead us to the conclusion that we must anticipate the need to increase the temperature of the hot metal, which will be accompanied by a slight increase of its Mn content. Because of energy considerations, only practice can provide the right answer to this question. We believe that construction of a 1300-ton mixer ensures the requirements of steelmaking with regard to uniform chemical composition.

In view of the specific coke consumption's planned reduction--and also because the processes for desulfurizing pig iron are expensive and involve heat losses--we are not planning to introduce a new desulfurization process. This is warranted by the fact that ladle finishing already provides a process for the desulfurization of steel.

Our results to date in developing the technology of steelmaking have been significant. The more-important stages in the development of open-hearth steelmaking are as follows: increase of the bath surface (charge weight); modernization of furnace design, and of the methods of building and repairing them; use of refractory materials of excellent quality; introduction of slurry spraying to repair the furnaces; oxygen injection; lining the ladles by ramming instead of with brickwork; modernization of the preparation and charging of the scrap; and constant improvement of our metallurgical methods. The present, nearly 1.2-million-ton output of our four open-hearth furnaces, originally with a heat size of 125 tons each, and the pertinent assortment of steel grades reflect to some extent the magnitude of these efforts. Most of the workers, technicians and engineers who are helping to raise the level of our steelmaking will be somewhat saddened by our having to outline a less spectacular future for open-hearth steelmaking. This future can be spectacular not in terms of tonnage, rather in the improvement of economic effectiveness and quality. The open-hearth plant will be modified to melt scrap, and it will change over mostly to the production of high-strength plate and of starting materials for the production of tubing.

The new possibilities for rapidly altering the oxygen activity and basicity of the reduced volume of slag have provided already realistic and economic ways to introduce new alloying processes, particularly if we combine them with the methods of ladle finishing.

The most significant, and economically the most successful, technological investment at the Danube Iron Works in years past was the construction of continuous casting units. An intergovernmental agreement ensures the construction of also a third continuous casting unit.

We nevertheless are planning to modernize also our existing casting plant. Built originally for a capacity of 800,000 TPY, the present output of the two-strand continuous casting unit of the vertical type already exceeds 910,000 TPY, and the quality of the sheet rolled from the continuously cast slabs is superior to that of the sheet rolled from ingots. The experts of Gipromez [State All-Union Institute for the Planning of Metallurgical Plants] designed the planned modernization. Its essence is a turntable mounted on the vertical casting machines' steel structure, permitting an increase in the proportion of strands cast from heat to heat. The geometric shape of the tundish has been redesigned. The relatively large tundish offers metallurgical advantages as well, in that it has also provisions for retaining the slag. Application of the new types of refractory materials developed for the brickwork and lining of the ladles, and for lengthening the service life of the tapholes and plugs, has drastically reduced the downtime, increased the output and curtailed the quality defects resulting from the refractory materials. Expedient division of the production program between the open-hearth and L-D plants also makes feasible the series casting of heats of identical quality.

These conditions, we believe, ensure that the increase in the steel output will manifest itself not in ingots but in continuously cast slabs.

Modernization of our continuous casting units does not make superfluous the construction of a third, curved-type continuous casting unit. To the contrary, not only will the construction of this third unit permit the complete discontinuation of ingot teeming and the dismantling of the soaking pits that have been written off long ago, but also reduction of the gage of the slabs to between 180 and 200 mm will increase the output of our reversing slabbing mill and plate mill.

In the meantime the individual elements of the system for controlling continuous casting have already been developed. Such elements are, for example, automatic level control in the crystallizer, control of cooling, automatic cutting of the strands, and control of the process of crystallization through electromagnetic stirring. However, the other elements for complete automation are still lacking. One of the most difficult tasks appears to be control of cooling at such degree of automation that always ensures the same surface temperature along a given cross section. Automatic coordination of the isotopic pool-gage readings with the pouring rate could speed up pouring. Complete automation of continuous casting is within our reach.

The metallurgists and refractory experts at the Danube Iron Works have made no small contribution to the development to date. For cast slabs to be rolled into sheet, they developed a deoxidizing method that can avoid surface defects due to blisters or to Al_2O_3 nodules. These slabs need not be stripped before they are placed in the pusher-type furnace. Similarly successful was the research into optimizing the deoxidation of high-strength starting materials for tubing. The attained results are relected in the following technical characteristics: Tubing made from cast billets without stripping meet the API specifications with 95 percent certainty, and the specific consumption of steel is 1180 kg of continuously cast billets per ton of tubing. In the course of this research we clarified the metallurgical and technical conditions of the formation of globular oxide inclusions, and of avoiding sulfite II-type inclusions. We likewise clarified the effect that the reactions taking place at the liquid-crystal interface have upon the morphology and arrangement of the inclusions arising during crystallization.

Our refractory experts have made great strides toward the exploitation of our domestic mineral resources and the application of new types of refractory materials. One of the greatest potentials for developing our production of pig iron and steel lies in the fastest possible utilization of the results achieved in improving the quality of the refractories and in the technology of their application. From the literature we know not only of refractory compounds that withstand the teeming of 100,000 tons of hot metal, but also of converter linings that withstand several thousand heats, and of ladles that withstand 40 to 50 heats.

If we solve these tasks with the wider participation of our domestic resources than up to now, we will be able to report further economic results. However, we will not be able to dispense even in the future with the systematic monitoring and application of the results achieved abroad.

Outstanding among the measures now underway or being planned to improve the quality of our sheets are the possibilities of deoxidizing, desulfurizing and alloying steels by the method of ladle finishing. The license and know-how that the KGM [Ministry of Metallurgy and Engineering] purchased with the assistance of OMFB [National Technical Development Commission] will find full-scale application already this year. The process will cause a sharp rise in the quality of our plate and tube steels, because it is able to reduce the S content of the steels even below 0.005 percent; and their oxygen content, below 0.002 percent. Elimination of II-type inclusions, and the formation of globular inclusions as a result of their Ca content, will permit the production of plates and tubing that have spatial isotropy. The impact strength values change within a temperature range of +20°C to -60°C as shown in Fig. 2.

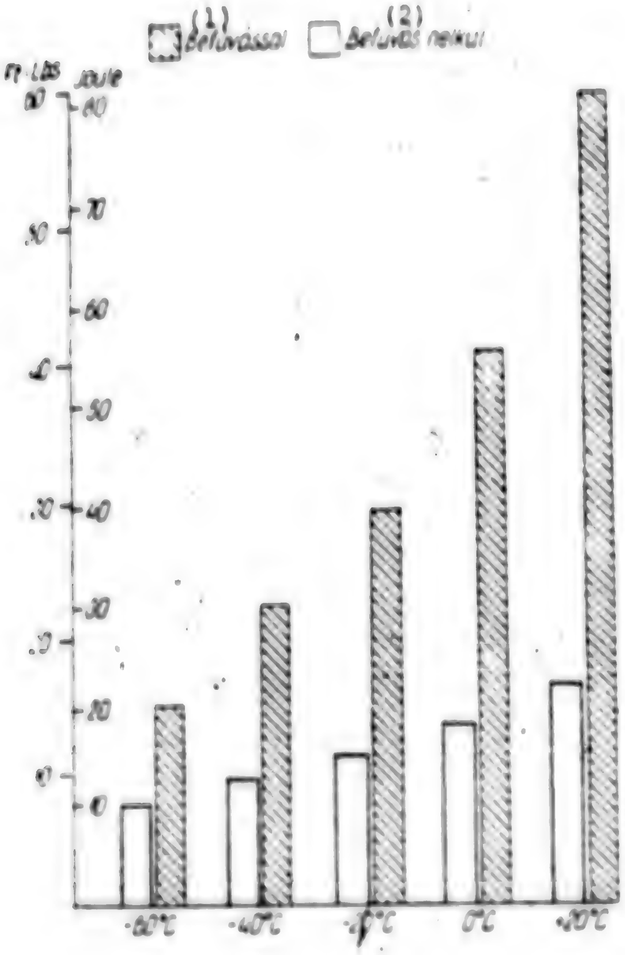


Figure 2. Transverse impact strength.

Key:
1. With injection
2. Without injection

We expect similar results also in the improvement of sheet quality, although we have not yet tested the process for this purpose. We believe that the experiments to be conducted in October and November will confirm our expectation that continuous casting of heats containing less than 0.01 percent S to avoid fissuring of the cast strand, and the reduction of the oxygen content below 0.01 percent will result in an improvement of the surface quality and of the ductility characteristics (Erichsen, $\bar{r}$ and $\bar{n}$). An increase of the steel's Ca content will facilitate the continuous casting of steels containing Al, because there is less danger of shell shrinkage caused by the Al_2O_3 and therefore casting can proceed at a faster rate and more evenly.

in conjunction with the introduction of this process--as one of its preparatory stages--we developed a method for retaining the open-hearth slag in the furnace, and for treating with synthetic slag the small amount of slag remaining on the surface of the molten steel in the ladle. By this method the oxygen activity of the open-hearth slag can be drastically reduced, and its basicity can be modified. The results of one such experiment are presented in Table 10. Reduction of the oxide content to about 6 percent FeO not only provides favorable conditions for desulfurization but also lengthens significantly the service life of the ladle lining and reduces the specific consumption of alloying materials that have a great affinity for oxygen. By this method it is possible to achieve 30 to 40 percent desulfurization during tapping. Therefore we wish to use this method intensively in our open-hearth plant as well as in our converter plant.

Table 10. Treatment of Open-Hearth Slags by Ladle Finishing

Időpont (1)	**SiO_2 %**	**CaO %**	**FeO %**
(2) **Csapoláskor**	**11,12**	**33,04**	**23,16**
(3) **Szintetikus salak adagolása után**	**22,98**	**36,68**	**1,67**
(4) **Argon öblítés előtt**	**22,81**	**33,81**	**8,36**
(5) **Argon öblítés után**	**28,53**	**31,64**	**6,30**

Key:

1. Time
2. At tapping
3. After the addition of synthetic slag
4. Before argon flushing
5. After argon flushing

Even on the basis of what has been said up to now we may answer with confidence the question raised in the introduction. The answer is that an increase in the output of pig iron and steel at the Danube Iron Works is a worthwhile undertaking even by the standards of the world market. It will contribute toward increasing our national income, as well as toward improving our balance of trade. One of the principal guaranties of achieving these results is that we will employ the latest advances in engineering and technology, adding to them the fruits of our own research and development while also seeking assistance from the brainpower of the domestic institutions and research institutes concerned with research and development.

1014
CSO: 2500

UDC: 669.16+669.18

DEVELOPMENT POSSIBILITIES AT OZD VIEWED

Budapest KOHASZAT in Hungarian Nos 3-4, Mar-Apr 80 pp 115-118

[Report by Dr Emil Furjes, metallurgical engineer and department head at the Ministry of Metallurgy and Engineering: "The Problems of Developing the Production of Pig Iron and Steel at the Ozd Metallurgical Works"]

[Text] Evaluation of the present state of pig iron production. Developmental possibilities: lengthening the service life of the blast furnaces' lining and improving the burden yield, by reducing the dust content of the agglomerate and the basicity of the slag. Increase of the blast temperature. Development of steel production, by improving the supply of scrap and alloying materials. Introduction of ladle finishing in the pouring bay, to produce high-grade steel.

The blast furnaces at OKU [Ozd Metallurgical Works] were built in the 1950's, and the steel plant assumed the main features of its present aspect in the mid-1960's.

Already in the second and third year after their reconstruction, the modernized metallurgical plants produced substantially more than had been planned, and they also had favorable conditions for the adoption of further organizational and technical measures, and for the expansion of production. Whereas in 1968 we produced 514,000 tons of pig iron and 800,000 tons of steel, our targets in the 1979 plan call for 960,000 tons of pig iron and 1.4 million tons of steel. On average over the ten years, then, our annual growth rate exceeds 8 percent, which is noteworthy in metallurgy.

Pig Iron Production

Pig iron production at the Ozd Metallurgical Works at present is characterized by the following more important technical indicators (see Table 1).

Table 1. Some Technical Characteristics of the Blast Furnaces at the Ozd Metallurgical Works

Approximate service life of blast furnace, years	6
Burden yield, percent	42
Blast temperature, °C	900
Coke consumption, kg/t	690
Natural gas consumption, m^3/t at NTP	70
Production rate, tons of charge/m^3 and day of operation	2.9
Coke rate at tuyere level, kg of coke/m^2 and hour of operation	720
Annual output of pig iron, 1000 tons	900
Working volume, m^3	2300
BEM [Borsod Ore Dressing Plant] Fe content, percent	46
BEM basicity	0.99
BEM dust content, particles less than 0.5 mm, percent	16
Basicity of slag	1.23

Examination of these indicators enables one to draw several essential conclusions. Let us examine one by one the most important indicators from which we can draw conclusions decisive for the future.

The service life of a blast furnace is 6 years! This is in agreement with the domestic average, but we should know that countries more developed than ours have attained a service life as high as 10 to 12 years. Since the relining of a blast furnace takes 100 to 120 days, lengthening the cycle is a significant factor in the better utilization of operating time.

I do not wish to discuss in detail the significance of improving the utilization of operating time, but I would like to emphasize the Hungarian metallurgy also must devote more attention to this question, because this is warranted by numerous technological, economic and technical factors.

Longer service life is influenced, among other things, by a suitable jacket, effective and reliable shaft-cooling systems, fuel of better quality, and more-efficient modes of operation, all of which can be ensured only through purposeful development activity.

According to the experience of the Ozd Metallurgical Works, use of a carbon compound for ramming the bottom has proved suitable, and we believe that at the next relining it will be possible to retain the bottom for another campaign. The situation with regard to the jacket and cooling system, however, is unfavorable.

We used a vertical cooling-plate system for the first time in 1973, when the No IV blast furnace was relined. On the basis of the designer's favorable opinion, we successively installed this cooling system in the other blast furnaces as well. But it turned out that the cooling plates were of unsuitable design, burned out soon, and it was practically impossible to repair them. Leaks ruined the brickwork ahead of time, peeling of the accretion became more frequent, and the number of tuyeres that had to be replaced nearly doubled.

The burden yield is 42 percent! This value is the lowest even for Hungary. The question arises as to what causes this. The answer can be formulated as follows:

The Fe content of the BEM concentrate that constitutes the bulk of the charge is 2 to 3 percentage points lower than the Fe content of the agglomerate produced at DV [Danube Iron Works]; this is related to the distribution of the concentrate.

The charge contains less of so-called shaving iron than at LKM [Lenin Metallurgical Works].

The basicity of the blast-furnace slag at the Ozd Metallurgical Works is unjustifiably high, 1.23; at an SiO_2 content of 15 percent or more in the agglomerate, this means that nearly 900 kg slag is formed per ton of pig iron.

From the professional literature and foreign experience we know that today many countries operate with a burden yield of 55 percent or more. Experts likewise know that improvement of the burden yield is a worldwide trend. Efforts are being made in this direction also within Hungarian metallurgy, by modifying the international agreements and with the help of development measures. However, these efforts will mature only by the end of the Sixth Five-Year Plan at best, and until then the composition of the charge will not change significantly.

Thus our possibility and task is to achieve improvement under the present burden ratios. In my opinion, the burden yield could be increased by 3 or 4 percentage points with the help of the following measures:

The quality of the agglomerate should vary as little as possible in terms of its basicity, and of its Fe, SiO_2 and dust content, so that the conditions for even operation of the blast furnaces may improve.

To this end the following are necessary:

Better averaging of ores and solid fuels;
Sizing of the agglomerate;
Reasonable reduction of the flux in the charge, in the interest of maintaining the basicity between 1.1 and 1.15.

Of the partial measures our enterprise is perhaps best able to influence this last requirement, whereas the other measures require the coordinated activity of two or three enterprises. I am convinced that we will avail ourselves of these opportunities in the near future, for the interests of both the national economy and the enterprise increasingly point in this direction. If, for example, the basicity were reduced to 1.15, the burden yield would increase by about 2 to 3 percentage points, as a result of which our output of pig iron would increase by 40,000 to 50,000 TPY, respectively we could save between 25,000 and 30,000 tons of coke a year. However, the sulfur content of the pig iron must be reduced by desulfurization outside the blast furnace.

The blast temperature is 900°C. This indicator does not rate as good even by domestic standards, not to mention the leading foreign countries where blast temperatures of 1300°C are already being used. The effects of increasing the blast temperature, and also the prerequisites for this, are well known. To attain a higher blast temperature we need, among other things, a suitable set of heating stoves, a system of blast mains and connections (from the heating stoves to the tuyeres) that operate reliably even at high temperatures, and a permeable charge that permits larger volumes of gases to move through the column.

None of these conditions can be met at the Ozd Metallurgical Works at present.

The capacity of the set of heating stoves is inadequate, and the rate at which they are being rebuilt is insufficient even to maintain the results already achieved, not to mention further development. Our system of blast mains and connections is unsuitable even for a blast temperature of 1000°C. The high dust content of the BEM agglomerate, in combination with the varying tumbler-test strength of coke, practically excludes the application of the mentioned blast temperature.

An action plan sums up what has to be done and includes, among other things, the following:

Rapid reconstruction of the existing heating stoves, including reconstruction of the base and relining;
Reconstruction of the No 13 stove;
Installation of ceramic burners and modern dampers, and modification of the gas and air mains;
Construction of a new smokestack, and reconstruction of the two existing smokestacks and flues;
Construction of two new heating stoves (Nos 14 and 15);
Relining of the hot-blast mains, using special insulation.
Development of our hot-blast auxiliaries can be effective only if the dust content of the balst-furnace gas used to heat the stoves is reduced to at least 15 mg/m^3 at NTP. This will be ensured by the operation of the proposed two new electric precipitators (Nos 5 and 6), and by improving the efficiency of the existing ones.

The coke consumption is 690 kg per ton of pig iron, which is worse than the specific coke consumption at the Danube Iron Works or Lenin Metallurgical

Works. The international level is around 500 kg/t, but the most advanced blast furnaces attain a coke consumption of less than 400 kg/t.

It follows from even this brief comparison that our tasks from the viewpoint of both technology and economic effectiveness are becoming more and more urgent.

The already mentioned three factors--service life of the blast furnace, burden yield and blast temperature--are correlated with coke consumption. Confirming and supplementing what has been said above, I wish to outline our possibilities as follows:

First and foremost, we must ensure even operation of our blast furnaces. The most important factors that affect even operation are: the charge; the level of maintenance work; and the turnover, materials handling and management of operations.

In our previous discussion of the charge I have not dwelt on one important area, the state of the stockyard.

The charging system of the stockyard is obsolete and unreliable, with regard to both coke and ore, because the scales are off. The coke is now being measured by volume, and its weight is being calculated theoretically.

In recent years we had SZIKKTI [Central Research and Planning Institute of the Silicate Industry] prepare a preliminary plan for modernizing the charging system.

Under the Sixth Five-Year Plan we are planning modernization at two blast furnaces, with outside support.

Among the maintenance tasks I would like to call attention particularly to the following:

Systematic inspection of the blast furnaces' cooling systems, and immediate prevention of breakdowns;
Systematic repair of the heating stoves, air mains and their fittings, in order to reduce air, gas and heat losses;

Closer attention must be devoted than up to now to the planned maintenance of the heating stoves. We must avoid having a stove out of commission for more than a quarter at a time, while it is being relined.

The on-schedule transportation of the raw materials for the charge is generally solved, except under exceptional traffic conditions (for example, during floods, snowstorms, and shortages of coke). The same cannot be said about materials handling at the plant, primarily about the supply of slag cars.

The main cause of this situation is the periodic severe shortage of freight cars, and the overfilling of the slag dump. Therefore the transportation or disposal of the slag is one of our key tasks. The pertinent plans have already been worked out, and the most important provision in them is the establishment of a new slag-dumping area at Center.

To sum up the present evaluation of the blast furnaces at the Ozd Metallurgical Works, I regard the following as a guide to the limitations on, and the indications of, our future tasks:

1. The addition of new blast-furnace capacity cannot come into consideration, but better utilization of existing capacity is and will be necessary, from the viewpoint of both production volume and economic efficiency. The possibilities for this do exist: improvement of the quality of the charge, oxygen enrichment, and increase of the top pressure are the best-known possibilities for intensification.

2. Among our future tasks, emphasis will be primarily on producing pig iron of better quality at low cost, and not on increasing the output. The prerequisites for this are a reduction of the specific coke consumption, and improvement of the conditions that influence this consumption. The factors that affect the specific coke consumption warrant close cooperation among the metallurgical enterprises on adopting technical and operational measures that will serve to improve the quality of the charge. This circle of tasks includes the development of tuyere designs, cooling systems and charge preparation, improvement of the operation of the heating stoves, oxygen enrichment of the blast, and many other measures. To the best of their knowledge, the metallurgical enterprises have started off in the right direction, and I am confident that their cooperation will produce the desired results in the near future.

3. The development of maintenance, more-efficient organization, and the use of credit resources for energy savings may be regarded as reliable ways of attaining better technical indicators. Other resources for investments can hardly be expected, in view of what expenditures the national economy is able to absorb.

Steelmaking

As I have already mentioned, we completely rebuilt our open-hearth plant under the reconstruction program that ended in the mid-1960's. Since then the heat size of our furnaces has increased from 80 tons to 110 tons, and in the autumn of 1977 the construction of a 10,000 m^3/hour (NTP) oxygen plant enabled us to increase the oxygen consumption from the 10 to 11 m^3/ (NTP) earlier, to 40 m^3/t (NTP). Parallel with the construction of the oxygen plant we enlarged the charging auxiliaries of these furnaces, and the auxiliaries of the pouring bay. One of our most significant investments has been a modern, six-strand, curved crystallizer-equipped continuous casting machine built under a Concast licence. We placed this unit in operation in the autumn of 1973, and its present output is 330,000 to 340,000 tons of 120 by 120 cast billets.

Some technical characteristics of our steel plant are presented in Table 2.

Table 2. Some Technical Characteristics of the Steel Plant at the Ozd Metallurgical Works.

Bath surface of furnace, m^2	40
Steel output, 1000 TPY	1360
Furnace production rate, t/hour	20
Average heat load of furnace, GJ/hour	70
(Gcal/hour	16.6)
Specific heat consumption, GJ/t	3.65
(Gcal/t	0.87)
Specific oxygen consumption, m^3/t	40
Average yield, t/heat	106
Metallic charge, kg/t	1154
Metallic charge and added ore as 100 percent Fe, kg/t	1165
Duration of campaign (number of heats)	355
Blowing-out, percent	8.8
Damping-down, percent	2.2
Utilization of operating time, percent	89
Rejects, percent	0.9
Proportion of pig iron in the metallic charge, percent	60
Total refining material added, kg/t	43

On the basis of the data in the table, we may establish the following:

For the given bath surface, heat load, oxygen enrichment, charge ratios and operating conditions, most of the technical indicators may be judged good, by both domestic and international standards. This applies primarily to the utilization of operating time, to the tons/hour production rate and to the proportion of rejects, but also the other indicators tolerate the test of comparisons. The production rate of the open-hearth furnaces is significantly lower than that of modern steelmaking installations (L-D, QuBOP, UHP Electro); for example, it is about one-fifth of the production rate of a converter of the same size.

In my opinion, the value of the specific metallic charge is acceptable. In the area of charging and the technology of process control, however, the efforts to further reduce the value of this indicator must be continued. Accurate weighing can narrow the variations of yield and reduce the losses of steel during tapping. Further perfection of the technology of process control can reduce losses of metal mixed and removed with the slag. Because losses of metal in the slag are significant, I will dwell on this question in somewhat greater detail.

The Fe content of the slag during meltdown with oxygen injection can be as high as 30 to 40 percent. According to our earlier technology, we tried to remove the slag from the furnace as early as possible, partially for quality considerations and partially to shorten the charge-to-tap time.

Early slag removal, however, had also a negative effect: The specific metallic charge, in terms of Fe, reached a value of 1185 kg/t, and this would have resulted in a loss of about 120 million forints a year had we not taken appropriate action in due time. The essence of our measures can be summed up as follows:

The hot metal must be added to the furnace not later than 35 minutes after the completion of charging, and process control (heating, injection of oxygen) must be directed so that the flushing of the slag from the furnace is delayed, occurring 20 to 30 minutes after the addition of the hot metal. By this method we avoided an increase in the charge-to-tap time and reduced the metallic charge by about 20 kg/t.

Similar possibilities exist for introducing optimal firing, to reduce the specific calorie demand.

As can be established from what has been said above, the main problems of our steel plant concern not the furnaces as the principal production installations, but primarily the pouring bay. Here the present practice of preparing the ladle and molds causes problems. The steel ladles are lined and dried mostly by conventional methods. Applying the refractory mortar with a pneumatic gun could eliminate heavy physical labor, and at the same time the service life and safety of the ladle lining would be improved.

The use of hot tops could simplify the manual operation of preparing the molds, and this would also influence favorably the reduction of frothing losses.

The method of adding alloying materials likewise must be changed urgently, with special attention to the considerations of quality improvement, and savings of manpower and material.

Haphazard supply of scrap and refractory materials for the open-hearth furnaces is causing much confusion and considerable difficulties. Progress is not fast enough in the wider use of domestic refractories, for the substitution of imported brick.

In summing up the most important tasks of steelmaking at the Ozd Metallurgical Works, I wish to emphasize economic effectiveness, quality and the elimination of heavy physical labor. Very likely the Ozd Metallurgical Works will not have to produce more than 1.4 million tons of steel, but the technical parameters and the quality of the produced steel must be improved. The tasks follow from the outlined state of the furnaces and auxiliaries. Improvement of the production conditions and the attainment of new results must be accelerated not through large-scale investments, but through upgrading and modernizing investments and through maintenance. Among the measures to improve quality we may consider also the extension of new technologies.

Colleague Sziklavari mentioned the advantages and potential applications of ladle finishing. In agreement with him, I would like to call special attention to lance injection. In the future we will have to devote ever-greater attention to improving the working conditions and also to the replacement of manpower, because at the Ozd Metallurgical Works there are perceptible problems also in this area.

I am convinced that the managements of the enterprise and of the factory unit will adopt the most effective measures possible, and that the sister enterprises, the Ministry of Metallurgy and Engineering and the other national organs will render maximum assistance. Within a few years these joint efforts will certainly be reflected also in the results.

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DEVELOPMENT AT LENIN METALLURGICAL WORKS DISCUSSED

Budapest KOHASZAT in Hungarian Nos 3-4, Mar-Apr 80 pp 119-123

[Report by Rezso Herendi, metallurgical engineer and technical director of Lenin Metallurgical Works: "The Questions of Developing Iron and Steel Production at the Lenin Metallurgical Works"]

[Text] Description of the blast-furnace plant and of its production results. Summary of the production installations and achieved results of the present open-hearth steel plant and electric steel plant. Establishment of a new integrated steel plant. The two phases of building the new steel plant: an 80-ton UHP electric furnace and continuous casting machine. Preparations for the start-up of the new plant.

The blast-furnace and steelmaking installations at the Lenin Metallurgical Works cannot be regarded as modern installations.

In terms of age, size, design and auxiliaries, our blast furnaces lag far behind the now customary and technically expected level. The open-hearth process already is regarded as obsolete, and our open-hearth plant is uneconomic, obsolete and hazardous. Among our electric furnaces there are also units that are still charged manually, and only the 50-ton Soviet furnace meets modern requirements.

With such equipment we cannot achieve our objective of modernizing our products and making them more economic. In January 1977, therefore, investment decisions were made at the cabinet level that call for the establishment of a modern steelmaking base.

Our pig iron production, too, must keep pace with the quantitative and qualitative development of steel production, and with the efforts to make it economically effective. At the Lenin Metallurgical Works the output of pig iron is nearly double the output of ten years ago. This development was achieved not by building new blast furnaces or expanding the existing ones, but by improving the level of charge preparation and by introducing various technological methods.

As a result, the specific coke consumption dropped from 840 kg/t in 1968, to well below 700 kg/t at the beginning of 1970. Of course, the injection of natural gas and the increase of the blast temperature were contributing factors in this.

Gradual improvement of the pig iron's quality and of the uniformity of its chemical composition kept pace with this quantitative growth.

Concerning the improvement of quality, special mention must be made of the uniformity of the chemical composition, particularly of the extent of variation in the Si and S contents. According to our data on the frequency distribution of the Si content, the proportion of output whose Si content exceeded the ±0.1 percent range of variation from the average dropped from 75.1 percent in 1968 to 39.7 percent in recent years. The same trend can be observed in the frequency distribution of the S content.

Aside from the worn-out state of the No III blast furnace, our present output of pig iron satisfies the quantitative and qualitative demand of our open-hearth steel plant.

With the startup of the converter steel plant, we must increase the output and significantly improve the quality of the pig iron, because its composition--specifically the actual Si, S and Mn content and their minimal variation--is an important factor in the utilization of converter capacity. Because of financial constraints, only partial measures are feasible, and we are able to ensure merely conservation of the Nos I and II blast furnaces, of their brickwork, stoves and other auxiliaries.

The No I blast furnace was rebuilt in 1978, without a new jacket after five years of operation. In the course of this we also reinforced the steel structure of the skip bridge. In view of the blast furnace's five-year campaign, we did not anticipate significant wear of the hearth's brickwork, and therefore we blew the blast furnace down without tapping the bottom. After blowdown and scraping out the bottom, however, we found so extensive erosion that the hearth lining had to be replaced. Because of this, reconstruction of the blast furnace took 39 days, instead of the 25 days planned.

We rebuilt the No II blast furnace this year, in 45 days instead of the 60 days planned. Blowdown was with bottom tapping, in the course of which we tapped all the hot metal from the hearth.

Here again, reinforcement of the skip bridge was as important as the reconstruction of the blast furnace. Shortening of the reconstruction time was enhanced considerably by scraping out quickly the material remaining in the hearth, by the good work of KGYV [expansion unknown], and by efficient preparations and work organization.

Parallel with the reconstruction of the blast furnaces we have rebuilt so far three of the heating stoves. In view of this it is feasible to plan to maintain continuously a blast temperature of 950°C, and parallel with this we can increase to some extent also the injection of natural gas.

The No III blast furnace, which offers the most possibilities, is the centerpiece of our plans. Even at present this blast furnace accounts for about 55 percent of our total output, and after its expansion this proportion will increase to between 70 and 75 percent. In other words, the converter plant will be supplied predominantly by the No III blast furnace.

Until the commencement of the blast furnace's reconstruction (in July 1980), however, maintaining reliable operation of the furnace built in 1975 will require considerable effort, because in 1977 and 1978 significant deformation and cracks appeared in the jacket, due to the worn-out bosh brickwork and shaft lining.

Having repeatedly reinforced the jacket, in March of 1979 we installed a new top and simultaneously undertook extensive reinforcement of the jacket, in the case of the bosh jacket by so-called pocket patching, where pockets joined to the existing jacket are filled with refractory cement.

To form a more centered blast for the purpose of protecting the jacket, we replaced the earlier 150-mm diameter tuyeres in the blast furnace with 130-millimeter ones, but this necessarily resulted in a reduction of the output and of the production rate, and a worsening of the coke-burning rate.

Work has already begun on the foundation of the fourth heating stove, and its construction will be completed foreseeably by mid-October 1979.

The heating surface of the checkers installed in the new stove will be 27,100 square meters, as compared with 12,800 m^2 in the present stoves. The checkers will be built of honeycomb checker bricks of the F_2 type, and the specific heating surface will be nearly double the heating surface of our present stoves.

After the construction of the new heating stove and the reconstruction of the three present stoves according to the same modernized design, the specific heating surface per cubic meter of working volume will increase from 50 m^2 at present, to about 100 m^2. With four-stove operation we must increase the blast temperature from 950-1000°C at present, to 1110-1150°C, and parallel with this the injection of natural gas also must be increased at the technologically feasible rate, to between 90 and 100 m^3/t at NTP.

The capacity of the purchased Japanese-Lang axial blowing machine that will be installed in the new blast furnace will permit also a certain increase of the production rate.

The converter plant by its very nature demands uniformity of the hot metal's composition, and the present variation in the composition of the blast-furnace product cannot be tolerated in this steelmaking installation. To ensure the required quality, therefore, at the No III blast furnace we will improve the accuracy of weighing the charge and the coke:

By equipping the ore-weighing cars with electronic scales;

By weighing also the coke electronically and using supplementary automatic control equipment to continuously correct variations in the coke's moisture content.

We are assigning an important role also to evaporative cooling. Parallel with the evaporative cooling system we are planning to install a closed cooling system for the tuyeres, and in 1981 we will introduce a new tuyere design built on the basis of a Soviet license. This will reduce the burnout of the tuyeres and will thus increase the reliability of operation.

Startup of the new steel plant and parallel operation of the open-hearth steel plant will create a peculiar situation in handling the hot metal. Seventy-ton ladles can be hoisted only in the Integrated Steel Plant. Because of the differences in the provisions for receiving, temporarily it will be necessary to use both 50- and 70-ton ladles.

With the realization of the measures and investments briefly outlined above, we will be able to supply hot metal for the converter plant at a technologically suitable level. Simultaneously, of course, also the technical level of our pig iron production will improve, optimally under our conditions. This can best be characterized by the specific coke consumption that basically reflects the technology of ironmaking. In comparison with the present level, at the same charge and coke ratios we are planning a reduction of between 40 and 50 kg/t in our specific coke consumption by 1981-1982.

The production of gray pig iron is a serious problem. After startup of the converter plant, the Lenin Metallurgical Works will not have any surplus hot metal, because the entire quantity will be necessary for the converter that will gradually be increasing its output, and for the open-hearth furnaces.

Because the other two metallurgical enterprises also will have shortages of hot metal, in my opinion it is necessary to investigate whether the foundries' entire demand for gray pig iron could be supplied from import.

In addition to the plans for technological development, mention should be made also of the question of replacing skilled manpower. In comparison with the manpower shortages in other areas, this is a more serious problem in the ironmaking trades. As a stop-gap solution we will request the workers of our factory unit to complete training courses for skilled workers in iron-making, offering them time off and leaves of absence for study, so that they may master their trades as thoroughly as possible.

Our enterprise recently commemorated the centennial of the commencement of open-hearth steelmaking. During this period the plant underwent considerable development, and its development has been rapid particularly since 1945 (Fig. 1).

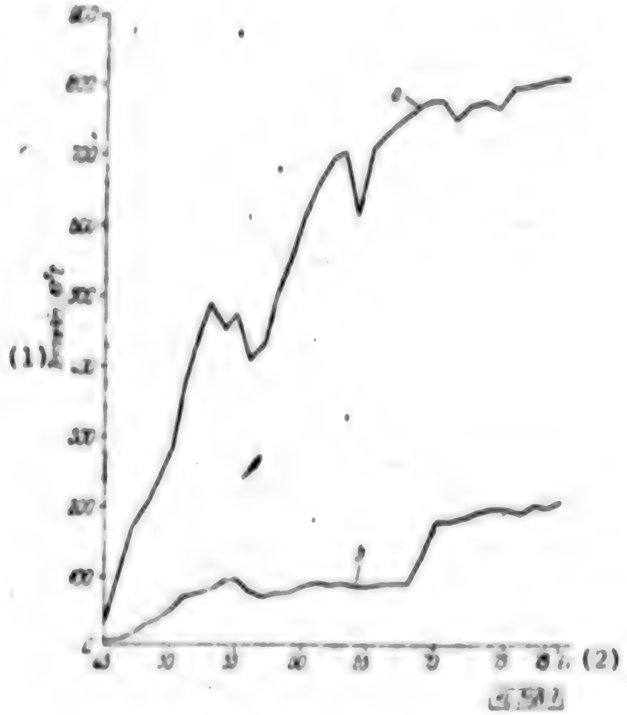

Figure 1. Development of the plant's steel output: a - output of open-hearth steel; b - output of electric steel.

Key:

1. Output, 1000 tons
2. Year

Postwar reconstruction and economic growth required ever more steel. The high quantitative demand necessarily led to the modernization and development of the steelmaking installations. As a result of the necessary measures and of the metallurgical experts' modernizing efforts, we were able to achieve already in 1947 the open-hearth steel output of 1938, the last prewar year. From then on the quantitative increase of our output may be regarded as continuous, except in one or two years.

In the open-hearth steel plant the No 9 furnace, with a rated capacity of 80 tons, has been placed in operation. The Nos 1, 2 and 3 furnaces have been in operation since 1951. The No 4 furnace, a 180-ton tipping unit and Hungary's largest furnace at that time, was commissioned in 1952. In 1954 we switched from generator-gas firing to firing with fuel oil residue, and we installed dampers that ensure rapid changing of the cycle. In 1959 we developed the conditions for combined firing with natural gas and fuel oil residue, and we modernized the supply of furnace air. We installed modern, dual atomizing burners for the new mode of firing. A significant technical measure in 1960 was that we increased the weight of the charge in a few furnaces, and simultaneously three-ladle tapping became feasible with the help of a tilting runner. The latest development in the open-hearth steel plant was in 1977-1978 when, in addition to investments for conservation of the equipment, we modernized the furnaces' measuring instruments and we also installed new safety equipment.

Development of electric steelmaking was similar to that of open-hearth steelmaking, as the production curve of electric steel unambiguously shows.

To develop our output of high-grade steel we commissioned two 10-ton Tagliaferri electric furnaces in 1951, and one DSZP 50 arc furnace in 1969. This 50-ton furnaces is our most modern steelmaking installation at present.

To satisfy the ever-higher quality requirements parallel with the quantity of production, in 1967 we decided to install vacuum-degassing equipment in the technological process of steelmaking at our electric steel plant.

In addition to increasing the quantity of production, we considered it our task to supply also the ever-higher qualitative demand. This was not an easy task, because our product structure is very diverse (see Fig. 2).

Approximately 1100 grades of steel are produced, including nearly 600 alloy steels.

To improve the quality we introduced modern steelmaking technologies suitable for our conditions. For example:

Special methods of deoxidation,
Treatment with synthetic slag,
Microalloying, and
Vacuum degassing.

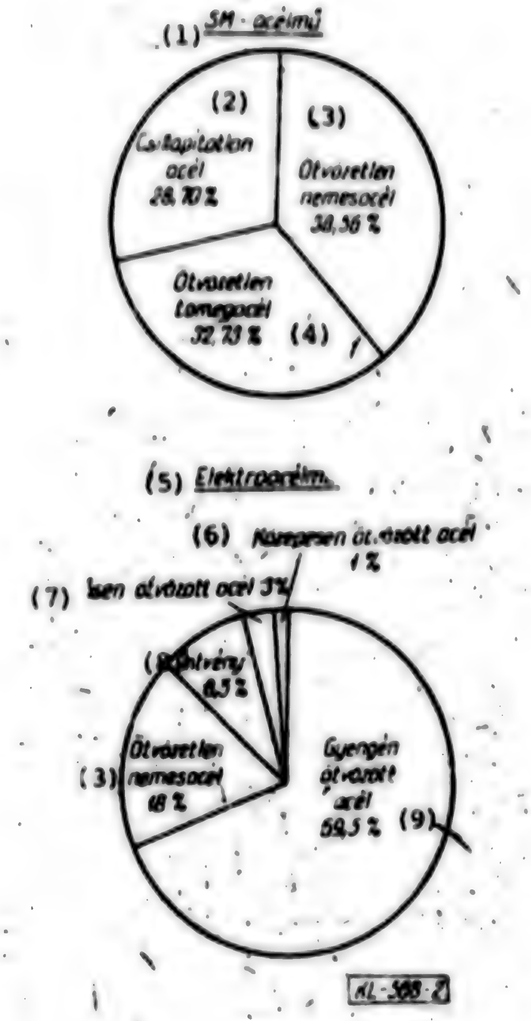

Figure 2. Product structure of the steel plants.

Key:

1.	Open-hearth plant	6.	Medium-alloy steel
2.	Rimmed steel	7.	High-alloy steel
3.	High-grade carbon steel	8.	Castings
4.	Plain carbon steel	9.	Low-alloy steel
5.	Electric steel plant		

In the present situation, however, we are unable to fully supply every demand.

Development objectives (investments, licensing agreements, etc.) in manufacturing, and here I have in mind primarily engineering and the automotive industry, do not always take into consideration the possibilities of domestic ferrous metallurgy. In many instances the steelmaking experts are faced with accomplished facts. Such development projects that are not adequately substantiated from the viewpoint of basic materials place a heavy cost burden on the steelmaking plants, because we are able to supply some orders only by repeated reworking.

The strict quality specifications and the new testing regulations can be met economically only with special processes, for example, with electroslag remelting, and their investment costs are substantial. This circle of problems includes, for example, turbine axles, special chemical-industry and reactor-technology installations, high-speed and tool steels, etc.

Despite our existing problems and relatively obsolete production installations, the quality of our products has nevertheless improved, or we have started the production of new, modern products. One such product is ZF steel that we use to make modern synchronized transmissions. By alloying with boron we improve the core strength and toughness, respectively the dynamic breaking force that characterizes toughness.

For chemical-industry investments, in accordance with the users' needs, we developed experimentally the basic material for forged rings of high yield strength and good weldability.

In our experiments we employed microalloying with niobium and vanadium. Under the influence of microalloying the size of the ferrite grains increased from the customary Nos 5-7, to 10, and the breaking force at 80°C was 2.8 m.kgf.

We conducted experiments with rare-earth metal alloy (mischmetall). The results of these experiments were utilized in making cranckshafts. The impact strength improved considerably, and its anisotropy declined significantly.

To improve the quality and economic effectiveness of our steelmaking we are undertaking our largest investment so far: the construction of an integrated steel plant, in two phases.

An L-D converter and a ladle-finishing facility are being built in the first phase.

The L-D converter operates in a spare-converter system, i.e., one converter is always in operation while the other converter is undergoing repair or serves as standby capacity. The converter's heat size is 80 tons, and its working volume is 68 m^3. The oxygen is blown in at a maximum rate of 300 m^3/min at NTP. The oxygen consumption per ton of steel is 52 m^3 at NTP.

For teeming there are eight transverse teeming stations, each accommodating two ingot cars on which the 6.5-ton ingots are teemed into molds, seven molds per stool. The ingot cars are moved in pairs by a haulage system from one hall to the next, in accordance with the technological sequence.

The molds are stripped with the help of two types of stripper cranes. VALMET [expansion unknown] straddle trucks transport the ingots to the roughing mill.

The requirements with respect to steel quality necessitate that we reduce the steel's sulfur content to a minimum. The effectiveness of desulfurization in the L-D converter is rather limited, about 40 to 60 percent. This is related to the following factors:

Basicity of the slag,
CaO/FeO ratio, and
Initial sulfur content of the hot metal.

We will install a stirring-blade desulfurizer to reduce the sulfur content of the hot metal. We plan to use powdered lime as the desulfurizing agent, and nitrogen as the carrier gas. Approximately 50-percent desulfurization can be achieved in the hot metal. With preliminary desulfurization, then, we expect to reduce the sulfur content of the hot metal to 0.025 percent. If we take into account that 40 percent further desulfurization can be achieved in the converter, the sulfur content of the finished steel will be approximately 0.015 to 0.018 percent. Further desulfurization can be achieved only with ladle finishing.

The main items of equipment for ladle finishing, and the operations that can be performed with them are as follows:

The ladle-finishing vessel has a capacity of 80 tons of steel.

A built-in induction stirrer stirs the steel. The effectiveness of stirring is enhanced by argon injection through the porous brick installed in the bottom.

The heating section has a transformer rated at 8 MVA, and a heating rate of 3 to 5°C/min can be attained with it. Preliminary heating occurs at atmospheric pressure.

The vacuum chamber is equipped with mercury-vapor pumps, charging lock, vacuum lines, and an oxygen lance that is necessary for refining. The lowest attainable vacuum is 0.5 mm Hg.

The ladles are of the gate-valve type, and their approximately 1 m^2 surface is made of austenitic steel.

The ladles are moved in tipping ladle-cars. The tipping angle is 50°, the speed is 12 m/min.

The following operations can be performed in the ASEA-SKF ladle-finishing facility:

Temperature equalization,
Vacuum degassing,
Desulfurization,
Deoxidation,
Alloying,
Slag treatment,
Vacuum refining, and
Casting.

The facility offers great flexibility from the viewpoint of both technology and programming, because it can be combined with any one of the primary smelting installations.

In sum we may say that the feasibility of combining ladle finishing with any of the smelting installations is unambiguously economic, particularly if we take into consideration the quality-improving effect.

In July 1979 we concluded a contract for the construction of the second phase. An arc furnace with a high production rate, and a continuous casting machine will be installed in this phase. The equipment is being supplied by two Japanese companies: Kobe Steel, and Nippon-Kokan. The arc furnace is of the Toschin type, its rated output is 220,000 TPY, the heat size is 80 tons, the transformer is rated at 36 MVA, and the heat time is at most one hour.

The production rate is enhanced by the three gas-oxygen burners installed in the sidewall of the furnace.

The furnace has a jacketed shell and is designed with a special wall-cooling system to reduce wear of the refractory lining to a minimum.

Figure 3 shows the development of a Toschin furnace's annual output and production rate; Fig. 4 shows its power and oxygen consumption, and Fig. 5 shows its refractory and electrode consumption.

The diagrams contain the specific production data of a 70-ton furnace built in Japan.

An important unit of the second phase will be a continuous casting machine.

The continuous casting machine will be a five-strand unit on which we will cast billets 120, 150 and 180 mm in diameter.

The capacity of the continuous casting machine is 350,000 TPY. It is designed with a curved crystallizer of the radial type. The nominal radius is 10 m, and the machine's metallurgical length is 16 m. To avoid oxidation of the casting radius, a protective atmoshphere of argon gas is planned between the pouring ladle and the tundish, and the tundish and the crystallizer. Each strand is equipped with an electromagnetic stirrer in the secondary cooling zone under the first row of rolls. The casting rate may vary from 1.0 to 2.4 m/min, depending on the quality and the billet size.

The flow of materials between the integrated steel plant's producer and teeming/casting units requires well-coordinated and organized work (Fig. 6). The many variations possible unquestionably necessitate a computerized process control system, which we have already ordered from the mentioned Japanese companies.

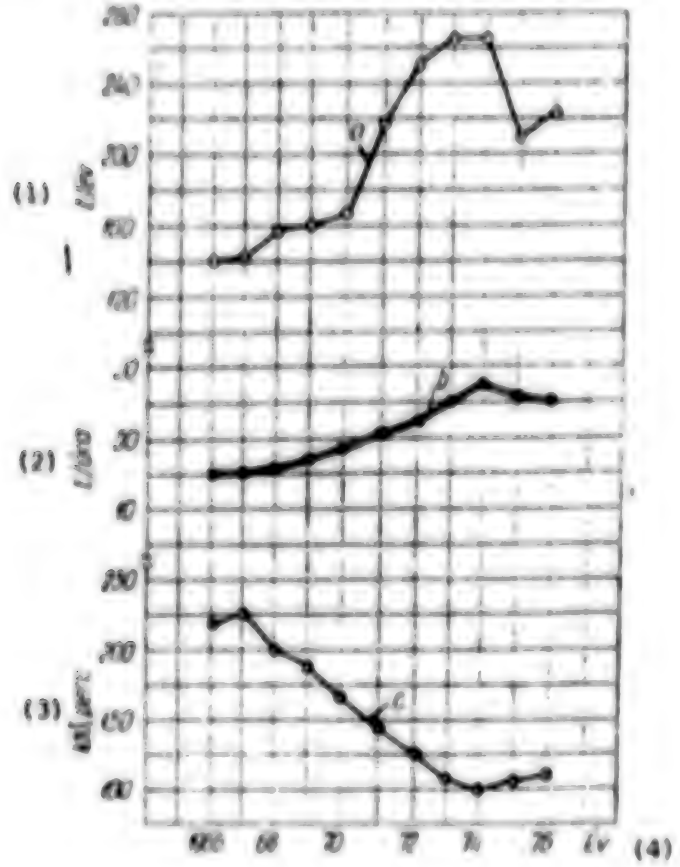

Figure 3. Development of the heat time (tap-to-tap time), production rate and annual output of a 70-ton electric arc furnace in steelmaking: a - annual output per furnace; b - production rate, t/hr; c - tap-to-tap time, minutes.

Key: 1. Tons/year 3. Time, minutes
2. Tons/hour 4. Year

Our experts are preparing systematically for the operation of the integrated steel plant. The most important task at present is to elaborate the technology for the first phase, which will be the basis for further organizational, technical and labor measures.

To this end we are researching, with the participation of outside institutes, the technological processes of converter steelmaking, the solubility of the scrap and lime, and the feasibility of using domestic refractory materials. We regard as a task of outstanding importance the elaboration of teeming technology and the supply of suitable teeming fixtures for the teeming bay. We are conducting extensive studies and experiments to prepare the production of teeming fixtures, stools, molds, refractory materials and hot tops.

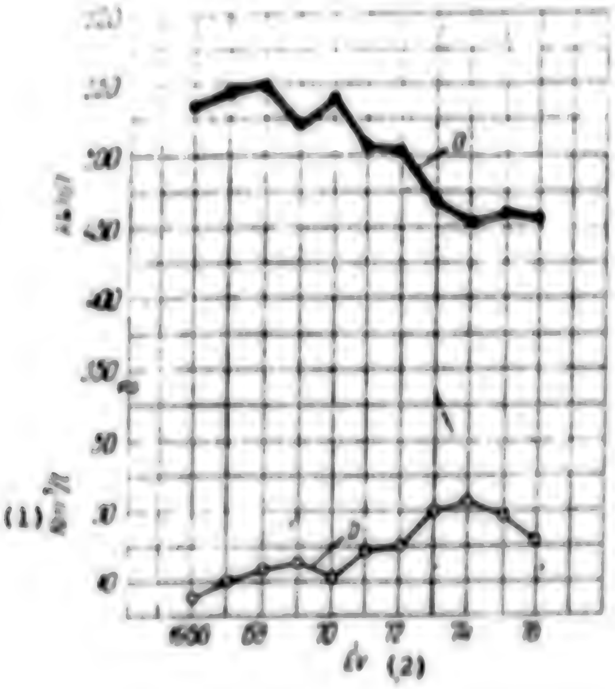

Figure 4. Development of the specific power and oxygen consumption of a 70-ton electric arc furnace: a - electric power, kWh/ton; b - oxygen, m^3/t at NTP.

Key:

1. m^3/t at NTP
2. Year

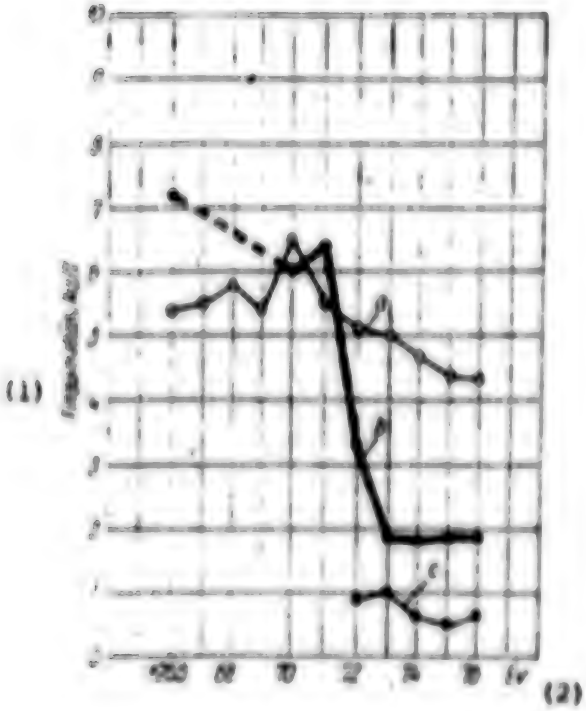

Figure 5. Development of the specific consumption of refractories and electrodes in a 70-ton electric arc furnace: a - electrode; b - basic refractory brick; c - graphite refractory brick.

Key:

1. Consumption, kg/t
2. Year

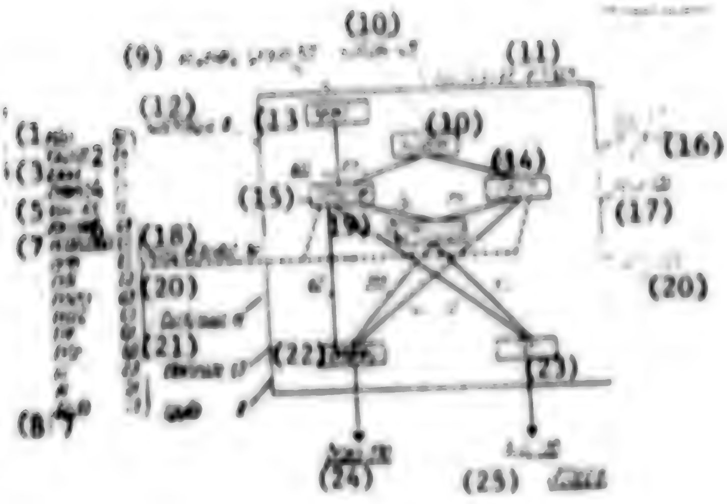

Figure 6. Materials flowchart of the integrated steel plant.

Key:

1. Limestone
2. Fluorite
3. Bauxite
4. Dolomite
5. Indian Ore
6. Coke breeze
7. Scrap added for cooling
8. Other
9. Hot metal
10. Scrap
11. The data are in 1000 tons
12. Refractory brick
13. Mixer
14. Grog
15. Converter
16. Electric furnace
17. Slag
18. Added metal and scrap
19. Ladle-finishing facility
20. Ladle lining
21. Electrodes
22. Teeming station
23. Continuous casting machine
24. Ingots
25. Billets

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DEVELOPMENT PLANS AT CSEPEL DISCUSSED

Budapest KOHASZAT in Hungarian Nos 3-4, Mar-Apr 80 pp 124-126

[Report by Ervin Proszt, technical director of the Csepel Steel Mill: "Problems of Developing Steel Production at the Csepel Steel Mill"]

> [Text] The report strongly emphasizes that the entire demand for starting materials to make seamless tubing must be supplied from steel produced in Csepel. A new electric steel plant, equipped with ladle finishing and continuous casting, must be built to produce 300,000 tons of molten steel a year.

Steelmaking in Csepel has traditions of long standing, and steel is being made here since World War I. In the meantime--similarly as at Hungary's other steel plants--the output of open-hearth steel and electric steel was increased on several occasions. This was achieved by increasing the heat size of the furnaces, expanding the furnace plant, building new steelmaking furnaces, and introducing other measures.

During the past decades our steel mill introduced numerous technological changes. Noteworthy among these was the fact that in 1935-37 we were the first in Central Europe to introduce oil firing and the basic-brick roof.

We were the first in Hungary to introduce mechanical chilling of rimmed steel with bottom teeming into big-end-down molds.

From the very beginning a principal task of our steelmaking was to supply suitable starting material for the country's only seamless tubing mill. Over the years we were able to easily meet the strict quality specifications for the cast round billets for tubes, and in more than 90 percent of the cases the tube mill was able to use the billets with their surface as cast. Over the years we developed the technology to produce the starting material for boiler tubes of suitable quality.

In addition to supplying billets for the tube mill, our steel mill supplied with starting material also the other ferrous metallurgical plants in

Czepel, including the steel foundry, the roughing mill, small-section mill, sheet mill, the forging plant, the production of high-pressure steel bottles, and welding electrode factory.

Over the years we closed down three rolling mills, but in spite of this the demand for steel starting material increased and the CSM [Csepel Works] Steel Mill, in the absence of suitable expansion, was unable to satisfy the demand. For this reason we procured ever more steel from outside sources. At present we are producing 190,000 TPY in our four 50-ton open-hearth furnaces, and 40,000 TPY in our three electric arc furnaces.

We are using starting material supplied by LKM [Lenin Metallurgical Works], OKU [Ozd Metallurgical Works] and DV [Danube Iron Works] among the Hungarian metallurgical enterprises, and by the Soviet Union, East Germany, Poland, Czechoslovakia, Bulgaria and Yugoslavia among the socialist countries. In terms of steel, the Csepel Works' total demand for starting material is about 530,000 to 540,000 TPY.

Within the total steel consumption of the Csepel Works, the production of seamless tubing requires 260,000 to 270,000 tons of starting material a year, and thus its share of the total demand amounts to 50 percent. Also for this reason the tube mill's demand for starting materials is decisive from the viewpoint of steelmaking technology, the size of the installations, the quality specifications and, last but not least, also from the viewpoint of managing production.

To substantiate the above statement regarding the management of production we wish to note the following:

The tube mill's four pilger mills require 13 grades of rounds in seven sizes ranging from 105 to 160 mm in diameter, an assortment of 55 different products.

The requirement for round ingots must be supplied in ten different grades and eight sizes ranging from 220 to 430 mm in diameter, an assortment of 49 different products.

The two push benches requires 79,000 tons of A 35 grade steel, in four sizes of billets ranging from 90 to 145 mm in diameter.

From these figures it is evident that the supply of the tube mill with starting material is no small task also from the viewpoint of managing and scheduling production, which can be ensured only through close cooperation between the two mills.

In conjunction with supplying the steel requirement of the Csepel Works, the problems of maintaining our open-hearth steelmaking arose already under the Fourth Five-Year Plan.

When KGM [Ministry of Metallurgy and Engineering] set the investment objectives for Hungary's iron and steel industry, it targeted the continuation of open-hearth steelmaking in Csepel until 1983 and agreed that until then production had to be ensured with upgrading investments that did not call for any expansion of production capacity. By its resolution adopted in 1974, the Council of Ministers allotted 311 million forints from the state budget for upgrading investments. The purpose of these investments was to reduce the amount of heavy physical labor, to improve working conditions and to resolve the manpower shortage.

Through the realization of the investments we reduced our manpower demand by 118 workers or 15 percent. With a new scrap-shearing machine we improved scrap preparation, and we mechanized the handling of the auxiliary and added materials. We replaced the two manually charged 5-ton arc furnaces with a modern 10-ton furnace equipped with a dust catcher. In addition, eight charging and travelling cranes were placed in operation, and the worn-out trackways of four cranes were reinforced. To improve the conveniences for the workers, we built a new lounge and cafeteria.

Without these upgrading investments it would not have been possible to maintain the four furnaces in operation to this day, and to avoid a drop in production of about 50,000 to 60,000 tons of steel a year.

However, the investments were unable to remedy the basic drawbacks stemming from the obsolete location and obsolete technological installations of the open-hearth plant that was developed during World War I and gradually expanded.

Overcrowding, heavy physical labor, the danger of accidents, and manpower shortage characterize our open-hearth steelmaking also at present. As an example of overcrowding I wish to note that significantly more ingots are teemed each year in Csepel than at other domestic steel plants with much higher output.

About 245,000 ingots are teemed each year at the Csepel Works, as compared with 200,000 at the Ozd Matallurgical Works, 42,000 at the Danube Iron Works, and 140,000 at the Lenin Metallurgical Works, in teeming bays substantially larger than the one in Csepel.

Despite the upgrading investments and other adopted measures (regrouping of manpower and wage measures), we have not been able to arrest the decline of the labor force. Because the new workers are inexperienced, the danger of accidents has also increased.

Upgrading investments are in progress to ensure also the further operation of our tube mill that has been producing for more than 50 years. At a cost of about 1.5 billion forints, these investments will be realized by 1981. Tied in with these investments is also the modernization of tube production, by building a new tube mill, the development objective for which has been approved by ATB [State Planning Commission], but with the stipulation that the question of supplying the starting material must be resolved in the course of elaborating the investment proposal.

Our domestic metallurgical plants are unable to supply the starting materials needed for tube production. Therefore the Ministry of Metallurgy and Engineering, in agreement with the decision of the State Planning Commission, entrusted the mangement of the Csepel Works to prepare a target study on the development of steelmaking. The ministry prescribed two alternative sites: one the existing open-hearth steel plant and its vicinity, the other land availabe in the southern section of the Csepel Works.

The first site variant was not elaborated, because expert opinion held that the buildings of our open-hearth steel plant were unsuitable for 25 to 30 more years of operation, and because the site's small area and layout would have been unsuitable anyhow for the proposed technology.

For these reasons the target study on the development of steel production was elaborated on the basis of the second site variant, and in this study the target was to supply the entire demand of starting materials for the production of seamless tubing.

The target study on developing a new electric steel plant was ready by the end of September 1978. As the site of the 350,000 TPY electric steel plant it considers the land available in the southern portion of the Csepel Works.

The task of the new steel plant will be to supply the entire starting material required for about 250,000 TPY of seamless tubing produced in a new tube mill to be built in the area of the old tube mill. The 6-inch push bench will require 240,000 TPY of continuously cast billets 180, 200 and 240 mm in diameter, and 85,000 TPY round ingots from 200 to 450 mm in diameter. The continuously cast billets must be supplied in the aforementioned three sizes and in 16 grades, an assortment of 40 different products. The round ingots must be produced in five sizes and 13 grades, an assortment of 52 different products.

For steelmaking the study considers two UHP arc furnaces and the oxygen-oil-gas auxiliary burner variant. To the steelmaking technology we will be able to add also ladle-finishing equipment. Today ladle finishing is a practically indispensable phase in the technology of making modern high-quality steels. After development, approximately 40 percent of the tubing produced in the tube mill will have to meet high quality specifications.

The application of ladle finishing is unquestionably warranted to improve, and to narrow the variations of, the longitudinal and transverse mechanical properties of high-strength oil-industry pipes, boiler tubes, and cold-drawn special tubing.

The steel will be cast in a three-strand continuous casting machine, respectively it will be teemed into ingot molds by mechanized teeming. We took into consideration also the casting of three successive heats in the casting machine, so that every fourth heat will be teemed into molds. We plan to computerize process control and the scheduling of melting, ladle finishing and casting. In addition to the principal production installations and auxiliaries of the steel mill, other supplementary investments also will be necessary. These include storage bins for the added materials, terminals for the power supply and natural gas, dust-control equipment, waterworks, sewage plant, conveniences for the workers, etc.

The manpower requirements for the new steel mill will be 480 workers. At current prices, the cost of the investment will be 5.4 billion forints. We hope to realize this investment within 2.5 to 3 years from the commencement of site clearing. Scheduling of the investment in the new steel plant must be coordinated with progress on the construction of the new pipe mill, and the investment will have to be subdivided into phases.

The limiting conditions of subdivision into phases are as follows:

Availability of financial resources,
Uninterrupted vertical production relations,
Economic product structure even if the vertical production relations are expanded in stages,
Even production rates, without production dropouts.

At the end of 1978 the management of the Csepel Works reviewed the complex plan for the development of steel production and tube production, because of changes that occurred in the conditions of development and in order to further reduce the investment costs.

Among the changes that occurred in the conditions of development, the priority of developing the production of cold-drawn tubin, the possible site of the tube mill's captive steel production, and the need of ensuring the economic effectiveness of the vertical production relations raised the question of developing a new site. A new proposal was elaborated that called for locating the 6-inch push bench at a new site, in the immediate vicinity of the steelmaking base. The great advantage of this new site manifests itself in that the hauling of the 240,000 TPY of starting material for the push bench would be eliminated, and production cooperation between steelmaking and the output of tubing could be ensured. The supplementary investments associated with steelmaking (sewers, water supply, installation of electricity and natural gas, etc.) could be shared by the new integrated steel plant and tube mill, resulting in lower investment and operating costs and in a reduction of the manpower requirement.

As a further advantage for the tube mill, the investment would disrupt production of the mill's existing facilities not at all or only to an exceptionally small extent, and in this way the very costly and unforeseeable temporary solutions and shutdowns could be avoided. Another advantage of a common site is that the conveniences for the workers could be shared, permitting a reduction of the construction costs. Furthermore, control of the entire integrated operation could be computerized, enhancing maximum utilization of capacity and optimal costs.

(The concept outlined above has not yet been approved by the management of the Csepel Works.)

In conjunction with the 311-million-forint upgrading investments in our steel mill, I mentioned that the investments only served to alleviate the manpower shortage but were unable to arrest the decline of the labor force. Our present 18 percent vacancy rate is already jeopardizing the further operation of our open-hearth furnaces. Our steel output will decline considerably in 1980, which will cause a serious problem in supplying starting materials for the tube mill. Maintenance of production will depend on the further development of the work force. Reduction of the steel output in Csepel would further intensify Hungary's steel supply problems.

Seeing the present serious situation of our steelmaking, the management of the open-hearth plant ordered the elaboration of a two-phase variant for developing the production of electric steel.

In the first phase our present output of open-hearth steel would be discontinued, and the new steel plant's output would be 200,000 TPY, which would ensure starting materials for the tube mill at the present level of in-house supply.

The steel plant would include an electric arc furnace, a ladle-finishing facility, and continuous casting.

The first phase would be realized on the site proposed for developing the 350,000 TPY output of electric steel, in such a way that the realization of the second phase would permit operation at full capacity. In this case the second phase of steelmaking would adapt to the realization of the development of tube production, ensuring the technological integration of the two plants.

With the realization of the first phase, then, our open-hearth plant would be shut down in such a way that the Hungarian iron and steel industry would be relieved of supplementary tasks that do not belong in its product mix. In August of this year the Metallurgical Committee of the Iron Workers Trade Union debated the problems of steel supply in Csepel.

Representatives of MVAE [Hungarian Iron and Steel Association], Danube Iron Works, Ozd Metallurgical Works, Lenin Metallurgical Works, and Csepel Works also were present at this session. A consensus developed that Csepel's steel supply could be solved only through investments. The conditions of Hungarian steelmaking do not permit the supply of small round ingots for the production of tubing in Csepel, and if steelmaking in Csepel is discontinued, the supply of the tube mill with starting materials cannot be ensured. There was also agreement that open-hearth steelmaking in Csepel can be phased out the most expediently and at most favorable outlays--taking also the transportation costs into account--by realizing the first phase of the development of electric steel production in Csepel.

The investment cost of discontinuing open-hearth steelmaking in Csepel--i.e., of realizing the first phase--is 2.992 billion forints at 1978 prices. The manpower requirement is 350 workers, while the manpower requirement of the remaining electric furnaces is 130.

The plan outlined above dovetails with the concepts for developing ferrous metallurgy in Hungary. It economically ensures the Csepel tube mill's supply with starting materials. And last but not least, it realizes also in our steel plant the "technological change" that unquestionably will be necessary in the near future, for reasons of economy and of supplying high-quality materials.

1014
CSO: 2500

ENTERPRISES TO COLLABORATE IN PRODUCTION OF COSTLY CHEMICAL INTERMEDIARIES

Budapest NEPSZAVA in Hungarian 16 Aug 80 p 3

[Article by Tibor Flanek: "Integration in the Large and the Small"]

[Text] One of the critical problems in the development of the Hungarian pharmaceutical industry and the related manufacture of herbicides is undoubtedly where, how, and mainly for how much it will be able to obtain those chemical intermediaries of complex composition and almost unpronounceable names for which individually there is no great need, but which, in their totality, represent one of the most important expenditure entries in the export-import balance of that industrial branch. We spend annually several tens of millions of dollars to acquire these products. Thus the improvement in the economy of our pharmaceutical industry is made difficult not only by a range of products which is wider than that of the international monopolies themselves, but also by the relatively high proportion of preparations manufactured in small numbers and at low profitability, if not loss. The different kinds of starting materials also cause great problems.

In theory, one could do something about this. Modernization of the product structure, termination of production at a loss is nowadays as much a task of the pharmaceutical industry as of any other branch. And we cannot say that we have not seen such efforts. But in addition to the economy requirements, the pharmaceutical industry must take another factor into account. Namely, that besides its obligations to the national economy, it also bears responsibility for the domestic pharmaceutical supply.

The Supply Responsibility

The pharmaceutical industry cannot withdraw this or that product from the market because it is selling at a loss. We are aware that such a step can cause problems even in the case of less vital items--for example, a shaving soap one has become accustomed to, or a shoe polish--but in the case of medicines this is simply not permissible.

Of course, socialist integration and international cooperation are available. In fact, we have already signed specialization agreements with the

Soviet Union and other socialist countries. These are working well, but there is little possibility that they can be expanded at a rapid rate for the time being. And there are capitalist imports, but we must take into account the fact that from the developed capitalist countries we buy pharmaceuticals at a cost two to three times higher than our own.

The Hungarian pharmaceutical industry resigns itself to this situation when, to protect the price level and moderate the country's import expenditures, it continues to manufacture products at the lower level of rentability, or even below it. Besides further investigating the possibilities of integration, they are seeking to improve profitability primarily by reducing costs as well as by introducing new, original Hungarian preparations on the world market.

One path of development, therefore, is more intensive research and an active market policy; and in production, the improvement of technologies and a more modern organization. The other course--where the reserves are greater--is for us to obtain, or manufacture domestically the in-between products, the so-called intermediaries, which serve as the starting materials for pharmaceutical and herbicide production.

It is not without reason that recently the organization of the domestic manufacture of intermediaries has come to the center of attention. Some of them are already made here at home, and thus there is a realistic basis for the development. But the Hungarian chemical industry will never be able to manufacture all of them because it is necessary for the pharmaceutical and herbicide industry, and the paint and plastics industries to have several hundred different kinds of compounds. On this long list there are some for which a whole year's requirement is measured not in tons but in kilos.

But all in all, these kilos also represent a very heavy import burden for the economy. Moreover, the foreign firms do not sell such materials willingly, because when they process them further they can make a much greater profit on the finished product. The security of pharmaceutical manufacture as well requires that--if at all possible--we solve the problem of domestic manufacture.

Successful Export--With Question Marks

The fact that the basic materials are also available to us suggests that we organize the manufacture of the most important intermediary products. These are petrochemical products and it would have been possible to conceive that the also otherwise successful petrochemical central development program would have extended in this direction. But there was not enough for all this, and the domestic plastic manufacture development was at least as important. Today the results that the manufacture and export of ethylene, PVC, and polypropylene have developed on a petrochemical basis should clearly improve the payments balance of the economy.

So-called aromatic products obtained in the process of petroleum refining also are successful export items and marketable at good price. There is, for example, benzol and toluol. But it quickly becomes evident that it is not such a great business to sell these products if we consider that the Hungarian chemical industry buys abroad at terribly high prices the intermediary products that are made from them. As a matter of fact, it is with the use of benzol derivatives that the Hungarians make such medicines as Papaverin, No-Spa, and Dopegyt, and herbicides like Fundazol and Propaklor. Sevenal, Noxiron, Fenilglicin, Halidor and Chlorocid are made from intermediaries with a Toluol base, as well as a series of paint colors and the PVC emollient.

These are only several examples out of many. All of them show that in the final analysis even exports that appear to be good for the economy are not always market bombshells.

Of course, the dimensions of our chemical industry and our pharmaceutical and herbicide industry are dwarfed alongside those of the large international monopolies. What they can do--control the entire production chain from the basic material to the final product--is not possible for Hungary. Or at least not in every area. If we want to narrow the production scale of the pharmaceutical industry, we cannot fall into the opposite extreme in case of the chemical intermediary products.

Without Being Exploited

But there is a rational middle course. The manufacture of the most important intermediaries necessary in the largest volume can be solved. Under the guidance of the Ministry of Heavy Industry we are realizing one-half billion forint investments each at the Borsod Chemical Combine, at the Fuzfo Nitrochemical and the Pet Nitrogen Works, and thus with the beginning of the next plan period more than $10 million in imports will become necessary.

We have not given up on the production of the intermediaries used in lesser volume, since these also represent a burden of many billions of dollars. But this cannot be centrally guided, and there is no material cover for additional and significant investments. But the ideas of various sized collectives, of specialists working in research institutes or cooperatives, or of private persons can make possible the savings of additional millions of dollars. The ministry is giving incentive with competitions to the realization of such ideas as do not require investments.

The essence of the matter is that in the narrow sense of the word it should be possible to moderate the burdens of the economy with social forces as well. It is worthwhile to manufacture certain intermediaries even in laboratories. It is not the volume, but the value that is important.

Of course, economy is the basic requirement. Therefore we cannot strive for complete self-sufficiency. We must exploit our own possibilities better, as well as the advantages in international cooperation. A good example is the cooperation between the Budapest Chemical Works and an Austrian firm: in return for the intermediaries manufactured in Hungary, the Hungarian party receives end-product herbicides.

Similarly, the true, long-term solution must be based on mutual advantages and interdependence. This is the one way in which we can put an end to frequent vulnerability to exploitation and obtain at realistic price, and with certainty of supply, everything which Hungarian industry, agriculture and consumers need.

6691
CSO: 2500

BROADER, STRICTER GRADING OF WHEAT ADOPTED

Budapest FIGYELO in Hungarian 30 Jul 80 p 11

[Article by Dr **Jossef** Bagi: "The Quality of Wheat"]

[Text] In the course of the past decade, our grain production has increased significantly, and did so primarily because of an increase in yield, and not because of the extension of the land under cultivation.

During the period of the Fourth Five-Year Plan, the yield of wheat increased at an average annual rate of 4 percent. During the Fifth Five-Year Plan--discounting the past year with its unfavorable yield--this increase in production continued.

In 1979, after several years of preparation, the Council of Ministers passed a resolution ordering the purchase of agricultural products to be done in accordance with their quality. In line with this resolution by the Council of Ministers, this system of purchase based on the product's qualities must be further improved. A resolution by the Ministry of Agriculture and Food Industry for the year 1980 makes it obligatory for all wheat to be purchased purely on the basis of qualitative considerations. These resolutions by the Council of Ministers and by the Ministry of Agriculture and Food Industry place significant goals before all agricultural establishments, as well as before the county purchasing branches of the Grain Trust. The species composition of the winter wheat sowings for 1979 indicates that the area devoted to the growing of better quality improved-wheat has increased considerably.

The system that has been used up to now to classify wheat evolved during the 1950's. Ever since that time the emphasis has been on producing better quality wheat even though this meant a relatively low yield. Moreover, the country's wheat production was dominated only by one or two species. The inner qualities of these species were more stable, and they satisfied all of the qualitative requirements. Thus, at the time of their classification, emphasis was placed only on the examination of their storing and their milling capacities. Their inner quality was examined only through random samplings.

The quantity of current production exceeds the domestic demands, but this quantity is achieved only through advanced agricultural methods, and through the production of about 20 different species of wheat. As such, the quality of wheat production varies from species to species, from region to region, and in many instances also with the agrotechnical methods used.

Consumers' needs have also changed. The rise in the quality of life produced higher qualitative expectations, and the earlier quantitative problems were replaced by qualitative expectations.

The New Classification System

According to the new classification system, the pruchase of the wheat is accompanied by a laboratory examination of the species, its water content, its mixability, its weight per hektoliter, its ability to withstand insects, its wet gluten content, its backing quality, and its enzyme status.

Many years of experimentation have proved conclusively that quality depends basically on the species. Low yield of good quality wheat is usually the result of agrotechnical and harvesting errors. At the same time, low quality wheat will never yield high quality products. The new regulations concerning wheat quality and wheat pricing distinguishes between three types of wheat: Improved food wheat, customary flour wheat, and fodder wheat.

The system of purchase based on the examination of the species and of the wheat's makeup was preceded by 2 years of experimentations. In 1978, this systematic comparative examination was conducted at the country's 25 large purchase depots, while in 1979 it was already being done at 30 places. On the basis of these examinations we have identified those improved species that yield the highest qualities. The GK-Tiszataj, the Martonvasar, and the Partizanka types proved to be the ones with the highest gluten content and with the best baking quality in every region. In good wheat-growing regions and with acceptable agrotechnical methods, the Yubileynaya type was also able to fulfill the quality requiremnnts. Besides species and agrotechnical methods, quality is most influenced by the agricultural region. The gluten content of the GK-Tisztaj type, was between 21 and 43 percent.

The wheat's baking quality is also influenced by the region's climate, as well as by the harvest time. With untimely harvesting and with badly executed artificial drying, one can destroy even the best quality crop to such a degree that it becomes unfit to be used as a food product.

[Purchase and Prices]

This year the wheat is being classified in 102 laboratories. The method of classification is in accordance with the norms and the price regulations. Within 15 days of having received the samples, the results of the tests are available to the agricultural enterprises. Disagreements are being judged and decided by the County Institute of Food Inspection and Chemical Analyses. Purchase is being conducted at about 1,000 separate places. The purchase capacity is indicated by the fact that, on the basis of 12-hour work day, the Grain Trade and Mill Industry Companies of the individual counties are able to handle 300,000 tons of wheat per day.

The stabilization of the production is underscored by the fact that, in the course of the past 10 years, the size of the wheat-growing area remained basically constant at about 1.3 million hektares. In 1980, the effective purchase price of fodder wheat 15 280 forints per quintal, flour wheat costs 310 forints per quintal, and of improved food wheat costs 325 forints per quintal.

Higher purchase prices are in the interest of all agricultural producers. But they receive this higher price only for the production of high quality wheat. In the course of the past few years, the size of the yields in large-scale production has developed approximately the same for all three of these wheat types. This all seems to prove that our current and long-range "species policy," i.e. the availability of better-quality species of wheat, will continue to ensure higher quality and larger yields in the future.

9271
CSO: 2500

GIEREK-BREZHNEV MEETING VIS-A-VIS POLISH MALAISE VIEWED

Paris LE FIGARO in French 31 Jul 80 p 3

[Article by Denis Legras--passages between slantlines originally published in italics]

[Text] Of all the Eastern Europe party chiefs who, following tradition, have come or will be coming to meet Leonid Brezhnev on the banks of the Black Sea where he is resting, Edward Gierek, who arrived last Sunday, will doubtless get the longest audience.

It may be difficult to discern from the language of a terse communique what is said in secret in the Oreanda villas, but all the same one can speculate that the talks will cover two specific points: the conference on military detente and disarmament in Europe, and the social and economic situation in Poland.

The idea for this forum to bring together the signatories of the Final Act of Helsinki was launched last year in the spring in Budapest, and was taken up by Poland, which volunteered to organize it. Step by step the socialist countries, and above all Poland, are trying to tighten the focus on the main themes, and the means for achieving real military detente in Europe.

The Kremlin gives the impression of leaving all the initiative on this to Warsaw, but from all the evidence it is calling the shots. Leonid Brezhnev, moreover, does not hide this in his "answers to PRAVDA's questions," on the occasion of the 5th anniversary of the Helsinki Accords: /"The immediate objective now,"/ he says, /"is to assure the holding of a European conference on military detente and disarmament .... The important thing is to find the way toward an attenuation of the military threat, now and in the future, to Europe and consequently to the entire world. This goal cannot be achieved if there has not been real progress in the field of limiting the arms race."/

For the Soviets' number one, detente /"can go through ebbs and flows,"/ but the Final Act of Helsinki /"is a good breakwater which resists anything that undermines the foundations of detente."/ That does not mean, for all that, that the accords signed in the Finnish capital are sufficient by themselves, and therefore we have this proposed conference, which in the Soviet view, while not being a miracle cure, would facilitate limiting the threat of confrontations in Europe. They also thus confirm that in their view detente is divisible.

Ideological Heresy

On the banks of the Black Sea, Leonid Brezhnev and Edward Gierek will try to refine this proposal, which they intend to see presented in Madrid in the fall, and to pin down the areas that could be studied by the experts. Several articles, published by the Polish press have already spelled out the contents: the conference agenda would include, according to the monthly WIDNOKREGI, an extension of the confidence--[building] measures contained in the Helsinki Act, notably with respect to notification and the scale of military maneuvers; but also the elaboration of measures aimed at avoiding [the danger of] surprise attacks, and looking toward a decline in conventional and nuclear armaments.

No doubt when the first secretary gets back to Warsaw, the field of action of this all-European conference will have been sketched out in more detail.

Leonid Brezhnev will change from counselor to inquisitor when the talk turns to purely Polish questions. The Soviet press and the media have maintained a total silence with respect to what is euphemistically called in Warsaw "temporary work stoppages," a silence which in reality is an expression of profound concern. The "Truth in Pricing" program launched by the new Polish prime minister surely met with the approval of his Soviet interlocutors, to the extent that it should permit an economic recovery in Poland. But its social consequences are being watched closely by the Kremlin.

The extremely circumspect way the Polish government is trying to contain the worker protests by "dialog" is certainly appreciated by the Soviet leadership, for it should make it possible to avoid any uprisings like those at Gdansk, Ursus and Radom. But conversely, this form of democracy at the base borders on ideological heresy. In the Soviet scheme of things, the trade union is no more than a relay between government and "the mass of workers;" if it is used in the reverse direction it becomes a disputacious element and loses its role.

Such a situation is unimaginable in the Soviet Union, and is tolerable for Moscow in the countries of Eastern Europe [only] on condition that the movement remains discreet. The example of Hungary should be able to convince Muscovite ideologists that doctrine is basically safe, but will Edward Gierek, who himself must face a demanding Catholic church, be able to walk the same tightrope as Janos Kadar unhindered?

Nothing is less certain. This is what Leonid Brezhnev will doubtless make clear to his guest for a day.

9516
CSO: 3100

DEMANDS OF STRIKERS NOTED

Paris LE MONDE in French 1 Aug 80 p 4

[Article]

[Text] Warsaw (AFP)--Streetcar workers in the urban complex of Gdansk-Gdynia-Sopot, on the coast of the Baltic Sea, the scene of the events of December 1970, observed a warning strike of half-hour duration on Tuesday, 29 July, it was learned Wednesday, 30 July in Warsaw. The strikers, who are demanding wage increases, declared themselves ready to stop working again if their demands were not satisfied without further delay.

Elsewhere, the 3,000 workers in the DOLMEL factory (electric turbines) in Wroclaw (the capital of Lower Silesia) also walked out Tuesday. They are demanding wage increases, improvement of the [consumer] supplies situation, and alinement of their family allowances with those of the police and the army.

In this latter city, the attempts by the official trade unions aimed at channeling the activist labor movement do not appear to have been crowned with success everywhere. The situation remained confused Wednesday in several enterprises downtown, the workers refusing to let the trade unions defend their demands. Discussions are supposed to be continuing with the leaders concerned, while production continues as before.

9516
CSO: 3100

GRUMBLING AMONG WRITERS REPORTED

Paris LE FIGARO in French 4 Aug 80 p 4

[Article by Bernard Marguerite--passages between slantlines originally published in italics]

[Text] Warsaw--More and more urgent appeals are making themselves heard in the Polish press for structural reform and a degree of democratization. Following POLITYKA another weekly, KULTURA, has come out clearly in this vein. Pressure for change is also mounting even within the party. One of the best examples of this is the first bulletin published by the party cell of the writers' association.

This bulletin number 1 opens, in fact, with an article signed /"The Executive"/, wherein one reads, among other things: /"We are not satisfied with the conditions of political and material existence of literature in our country. We have said it before, and we will continue to say it."/ The editorial criticizes censorship and proclaims: /"The limits of censorship are debatable, and we will do all we can to put it as far away from us as possible, in accordance with the letter and the spirit of the constitution."/ It is essential, in fact, to /"eliminate the anachronistic and subjective obstacles of censorship."/

The writer Jerzy Jasionowski also addresses this problem:

/"Literary works,"/ he writes, /"are castrated upon the arbitrary judgment of various censors. The same text may be unacceptable in Lodz, but accepable in Warsaw. As a result, petty officials in the censorship office can decide what of all the literature will be passed on to posterity and what will be eliminated. The more fearful they are, the worse the situation is."/

As for well-known writer and critic Andrzej Mencwel, he raises his voice against the refusal, for years now, [of the authorities] to publish a book by Andrzejewski. He also deplores the prohibition by the censorship office of mentioning the names of certain writers of which the regime takes a dim view, and the prohibition against presenting critical reviews of works put out by dissidents. These prohibitions, the author says, don't just affect the banned writers. Rather, /"They hit us too, by putting us in an apparently privileged position which, in fact, limits our freedom of action."/

The party bulletin, on the other hand, complains bitterly about the dissidents whom it accuses of /intellectual stalinism in reverse,/ simultaneously showing a certain [attitude of] ostracism towards writers who do not publish in the /underground/ editions, and also producing a literature of strong political coloration which, seen from here, is almost as simplistic as the work published in the Stalin era.

The objective of the writers' association, according to the party cell, is to be a partner in the elaboration of cultural policy: it must continue to act in this direction, even though up to now this goal has not been possible to attain. The writers in the party thus intend, evidently, to make themselves the spokesman for the community of intellectuals vis-a-vis the government, and thereby to succeed in a role which the trade unions, for example, have been incapable of fulfilling with respect to the representation of the workers. One eminent writer, a member of the central committee, summarized in these terms this campaign: /"We have no choice if we want to avoid what happened in Czechoslovakia. If we do not want the writers' association to be taken over by irresponsible revisionists, it is up to us to set the example."/

9516
CSO: 3100

POLITICIZATION OF STRIKES NOTED

Paris LE FIGARO in French 11 Aug 80 p 2

[Article by Bernard Margueritte]

[Text] Warsaw--Far from fading away, the wave of worker strikes which has shaken Poland for six weeks is only expanding and above all, which is especially disturbing for the government, becoming more and more politicized.

It is estimated, in fact, that about 50 incidents or work stoppages have occurred since the beginning of July. Lastly, it has been the cleaning workers who have gone on strike. Their demands include not only increased wages, better meat supplies and social benefits, but also the demand that there be free elections for union representatives. Very interestingly, these demands have been addressed not only to the government but also to the workers' committee that continues to function in the tractor factories of Ursus, near Warsaw. A second committee of the same kind has held out in Lublin. It too, taking up for example the demands of the 20,000 striking workers for the second time in a month this week at Swidnik, is demanding free elections in the trade unions.

The authorities are more and more powerless, due to their failure to have acted in time to accept trade unions, as in Hungary, that represent the workers' interests while remaining linked to the government. Now they are threatened by the appearance of an authentic movement representing the workers. The ideological and politican danger is indeed great, but the leaders are hardly, in the present state of events, in a position to effectively fight back.

It would, however, be naive to exaggerate the scope of these demonstrations of worker democracy. In 1956 and 1957 very active "workers' councils" were functioning throughout the country. In December 1970 and in early 1971, worker committees were created in the shipyards of Gdansk, Gdynia and Szczecin. In each case, these groups authentically representing the workers were suppressed as soon as the government regained some stability.

However that may be, the strike movements continue, further aggravating an economic situation which is already difficult. According to one well-known Polish personality, the wage increases already granted are going to cost the state budget 20 billion zlotys. Moreover, the bumbling attitudes of the authorities provoke the workers to go on strike. In some cases, in fact, such as in a plastics factory in Silesia, wage increases are being granted only to those workers who have already gone on strike. In other cases, strikers are getting increases greater than those given to non-strikers. Thus in Warsaw's joint transport enterprise, the employees who had struck obtained a wage increase of 1.50 zlotys per hour, while the non-strikers got only an increase of 1.10 zlotys ....

So it is a completely anarchic situation. All this explains why the malaise is becoming more and more perceptible even within the party. The next plenary session of the central committee, which should meet about 5 September, is thus being awaited with growing impatience. The leadership of the party, in effect, will have to resolve to tell the public what it intends to do to get the country out of the grave crisis in which it is becoming more and more deeply enmeshed.

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GDANSK REGION STRIKE, PREMIER BABIUCH APPEAL NOTED

Agitation Becomes Political

Paris LE MONDE in French 17-18 Aug 80 pp 1, 2

[Article by Bernard Guetta--passages between slantlines originally published in italics]

[Text] Communications between the city of Gdansk and the outside have been cut since the afternoon of Friday, 15 August. We were able to learn, previously, that the strikers in the Lenin shipyards, whose demands have politicized the present strikes, were followed in a completely peaceful way, by some 30,000 workers from other enterprises on the Baltic port.

The way the prime minister, Mr Babiuch, spoke Friday night on television to the population expressed both the confusion of the authorities and the limits of the possible: without making concessions to the strikers, he only promised to maintain meat prices at their present levels (increased starting 1 July 1980) through 1981. The press and television are stepping up appeals to "self-discipline."

Mr Gierek, the party chief, who had met Mr Brezhnev in the Crimea on 31 July, cut short his vacation in the USSR by 24 hours to return to Warsaw. In Bonn, where developments in Poland are being followed "attentively," it is hoped that there will not be "consequences" for the talks Mr Gierek is supposed to have in Hamburg with Chancellor Schmidt on 19 and 20 August.

Neither in Moscow nor in the other capitals of the socialist community is anyone commenting on the Polish strikes. In Tirana, by contrast, the party organ ZERI I POPULLIT writes that they demonstrate "the hatred and

> opposition of the workers to the capitalist, anti-popular, anti-national policy of the Warsaw revisionists."

Warsaw--A month and a half now of repeated and successful strikes. Warsaw without public transport for 4 days this week. And now Gdansk, alarmingly calm, in revolt. All this in a communist country, within the territory of the biggest of the USSR's European allies. Where is Poland headed?

Some shrugging of the shoulders, arms lifted up to the sky, and a poignant murmur /("a catastrophic situation, grave, very grave")/. This is the only response one can pull from official spokesmen. They do not become unstrung; they are not trying in some obscure way to dramatize things. No, they simply do not know; the propaganda department is no longer putting out situation reports on which they can elaborate; and the demoralization of officials is mirrored by the worry of the Poles.

The opposition is no longer garrulous, or sure of itself. It should, however, claim victory. Following the riots of 1976, in efforts to obtain amnesty for the convicted workers, it was down to a handful of intellectuals. It has increased, developed a powerful clandestine press network, and, since 1 July, whenever a new strike has broken out the first action taken by the strikers has been to inform Mr Jacek Kuron, the principal leader of the Committee for Social Self-Defense (KOR). Spontaneously, unanimously, the popular discontent has anointed the main opposition group with political and moral authority.

But these dissidents are not in any danger now from visionary fire-brands, and their entusiasm is strongly mixed with anxiety.

They know that if the authorities do not resolve quickly upon major political concessions, the extraordinary quiet explosion which has shaken Poland for 7 weeks could turn into tragedy. Everyone wants to believe that Soviet intervention is improbable, because of the fierce resistance it would encounter and because there is also the Afghan front. But everyone also knows that it could become possible, should the leadership, out of failure to take bold action, allow the chaotic wave of strikes to spread.

In Gdansk it is already a fact: the agitation for better social conditions has already taken a political turn. Just before last weekend began, management at the shipyards thinks it prudent to dismiss three agitating workers pre-emptively. Two of them, Mrs Anna Walentynowicz and Mr Nowicki, are old members of the 1970 strike committee. All three are linked to the opposition and participate in the editing of the opposition labor bulletin, ROBOTNIK ["The Worker"], which is widely disseminated in Gdansk. Time for discussing how to respond, to prepare statements, to make the roneos [translation unknown] turn, and the strike breaks out Thursday 14 August in the morning, after a distribution of tracts.

Three hundred people are going to demonstrate outside the management's offices, brandishing pennants: /"Restore the rolls," "Raise our wages!"/ A strike committee--10 people at first, 100 now--is formed. The movement spreads through the whole Lenin shipyard. Mrs Waientynowicz is reinstated by early afternoon. But there are 17,000 strikers, and negotiations must be begun. They will last until 0100, in the presence of the vovoide [translation unknown], and are followed by all the workers, broadcast direct by loud speakers.

A political theme--solidarity--lies at the origin of the movement: a political group played a decisive role in organizing it, but this is nothing beside the shock of the demands advanced.

In addition to wage increases (2,000 zlotys)*, retirement pensions and family allowances, the workers are also demanding the erection on the yard of a monument to the memory of the victims of the repression of December 1970 (several dozen deaths); the reinstatement of all persons discharged at that time; recognition of a representative trade union; the dissolution of the national directorate of the official trade union; the liberation of political prisoners; the closing fo the so-called /"commercial"/ stores, whose prices are higher and which are getting more numerous; an audience with the prime minister; a pledge of impunity for the members of the strike committee, and finally, the publication of these demands in the press.

Friday at 0600 the management lets it be known that it is reconsidering the dismissals, that it agrees to the increase in family allowances to correspond, as demanded, with those for the police, a wage increase of 1,200 zlotys, that there will be no reprisals, and--what is unheard of--that the monument will be built to commemorate the 10th anniversary of December 1970. Activity and work must be resumed.

Not only is there no resumption, but the bus drivers in the city walk off, as well as [workers in] several other yards. The inhabitants are going to bring victuals and the results of their collections to the strikers who are occupying their place of work, and Gdansk (which suddenly cannot be reached by telephone) seemed, that evening, totally paralyzed.

Mr Babiuch's Intervention

Meanwhile, in Warsaw, Mr Gierek had returned in the morning, 24 hours early, from his Soviet vacation. An insistent rumor about an immediate convocation of the Political Bureau, followed by an important announcement, ran through the capital, and already theories are built up on the extent of the leadership shake-up. A shake-up which seemed indispensable and unavoidable to many officials. There was not (officially, at least) a meeting of the Political Bureau, and no announcement. Only, after the televised evening news, a speech by the prime minister, Mr Edward Babiuch.

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* 1 zloty is worth about 13 centimes at official rates

A strange, unreal sight: this small pudgy man, neuter and unexpressive, a portrait in shades of gray, reading carefully, seated, bent over under the Polish eagle, a long monotonous text whose only surprise was that it contained no surprise. Only mention of the aggravation of tension, /"the larger scale"/ of /"work stoppages"/ in Gdansk, and a moderate paragraph against /"enemies of people's Poland who are trying to profit from the atmosphere of tension and emotion for their [own] political ends."/

The rest of it was just everything is going badly but everything is all right. Everything is going badly in all sectors of the economy and in [availability] of supplies, and there is no miraculous remedy. The /"work stoppages"/, consequently, can only /"harm the interests"/ of the population, and the wage increases can only increase the deficit. We must work /"calmly, properly and with discipline"/ to solve the problems--which is not to impede discussion of the problems outside working hours and in a constructive and /"patriotic"/ spirit.

Everything is all right because /"I believe in the wisdom of the working class, in its class consciousness I believe the working masses understand the exigencies of the state (...) and"/ (because) /"our common concern is the future of Poland."/ Four points more to raise: the government will present to the next plenary meeting of the Central Committee (at the end of September) /"detailed proposals"/ for resolving the economic crisis. Meat will not go up again between now and the fall of 1981. A very clear criticism of the former prime minister, Mr Jaroszewicz, relieved in February, who neither understand how to effectively head off the problems, nor warned the population. /"For many years,"/ he explained, /"we have spent more than we have produced, our national allocations have been greater than our national product, our national allocations have been greater than our national product, we have developed ourselves on credit."/ Today, /"Poland's level of indebtedness is such that it could not be further increased."/ And finally, one sentence: /"The world is watching us. We have loyal friends who are also concerned about our problems, who believe that we will be able to meet them alone, and who hope with all their hearts that we can."/

The general direction of his speech is clear: we know that you, the people, are sufficiently aware of the geo-political realities of the country to know not to go too far. It is therefore essential to wait for reason to prevail, not to dramatize the strikes, and to maintain the policy, adopted by the congress, of austerity and of very progressive mini-reforms.

It is a risky gamble. Economic recovery, for whatever reasons, will not meet expectations. And we will only be able to see in retrospect, tomorrow, or 6 months from now, whether it was not also playing with fire.

'We Will Hang On!'

Paris LE MONDE in French 17-18 Aug 80 p 2

> [Text] Here is a report from AFP special correspondent Marian Kafarski, sent from Gdansk before telephonic communications were interrupted to the Baltic port.

After more than 30 hours of on-site striking, the atmosphere among the 16,000 workers in Gdansk's Lenin shipyards was one of determination.

Despite the discomfort and lack of sleep, the strikers are scarcely inclined to make the least concession. "We are steadfastly determined to continue with our action till our demands are met," we were told by Mrs Anna Walentynowicz, a member of the strike committee.

A heavy silence weighs over this place, usually swarming with life and resounding with the noises of sheet-steel working. The huge arms of the cranes are inert. The access gates to the shipyard are closed. Picketing strikers stand vigilant guard there and systematically empty every bottle of vodka contained in the baskets of provisions people have brought.

Before gate no 2, the same one where, in December 1970, the first strikers fell under fire from the army and the police, several hundred people have come to express their support for the workers. Mothers, wives have brought food for their son or husband. There is joking, smiling and mutual consoling.

The enormous grillwork gate is opened for the AFP representative, who is then amongst the strikers. Their expressions, unexpressive at first, brighten rapidly after introductions. The workers' responses are laconic. They can be summed up in one sentence: /"We will hold on!"/

In the immense conference hall of the shipyard, the strike committee is at full strength: about 100 people, compared with 20 at the beginning. The negotiations with management have been tough. They lasted until 0100 on Friday. The manager promised to resume with them at 0500. He has not yet come to the meeting. One hour later, he has made known his proposals: unacceptable, the strike committee answered, rejecting them out of hand.

The city of Gdansk is calm and quiet. The old city, moreover, has been paralyzed since Friday morning by a walk-out of public transport employees. In the streets, housewives hurry to do their shopping. The lines lengthen in front of the meat and pork shops, where smoked ham can be seen, a rather rare commodity. Immense waiting lines crowd around the bakers' shops overflowing [with people]. The deliveries didn't come? No, answers a cashier, people are stocking up provisions. Why? Instead of an answer, only a smile ....

In the sleeping city, no sign of police power. But the level-headedness of the angry workers and the inhabitants of Gdansk hides a worry that no one dares to express aloud. Everyone realizes that the situation is tense, as the grumbling of the workers at the shipyard has spread out over sister enterprises; the entire naval construction sector is affected by the strike. Work stoppages have hit ELMOR (electric installations), KLIMO (air conditioning), TECHMET (diverse installations) and OPAKOMET (metallic containers), among others. The workers at the North Yard (a new industrial port), for their part, had sent a delegation to their comrades in the Lenin shipyard.

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'LE MONDE' COMMENTARY ON POLISH STRIKE, GEOPOLITICS NOTED

Paris LE MONDE in French 17-18 Aug 80 p 1

[Commentary]

[Text] The televised intervention of the Polish prime minister Friday evening is indicative of the disarray reigning in Warsaw: Mr Babiuch, in effect, has found nothing else to offer, in speaking to the strikers at Gdansk and elsewhere, than an indirect but perfectly clear allusion to an intervention by the Soviets, "our loyal friends, who are also concerned about our problems, who believe we will be able to meet them alone and who hope with all their hearts that we can ...."

History and geopolitics sometimes have implacable laws: thus the Polish authorities today have no other argument to offer the workers, whom in principle they represent, than the risk of intervention by the great protector of the socialist world. The argument, it is true, has carried some weight a few days from the 12th anniversary of the invasion of Czechoslovakia. However, at this point, there are no clear indications that this sinister scenario is going to be repeated. But the threat hovers overhead, even if the USSR, already entangled in Afghanistan, knows perfectly well that the Poles would not remain passive before an attempt at "normalization."

The labor crisis which is agitating Poland could not, however, have taken the leadership by surprise. After all, a similar crisis--though more violent--was what brought Mr Gierek's rise to power. If he is logical with himself, the Polish leader can only resort, once again, to negotiation. Did he not promise, right after the bloody repression of the Gdansk revolt of 1970, that never again would workers be fired on? We must hope that all the members of his team feel themselves equally bound by such a promise.

Other commitments, however, have not been kept. This is especially the case with the reform of the Polish labor apparatus, one of the questions which most stirs up the workers. Despite the revolts in Poznan, Gdansk, Ursus and Radom in 1976, which always started in factories and which expressed the depth of the worker dissatisfaction with the absence of any forum of appeal, the communist government has not in any way modified the operation and the formal role of the trade unions. As in 1970, the latter are again headed by a veteran bereft of real power, Mr Kruczek, a survivor of the Gomulka era allied with Edward Gierek.

However, following the Baltic riots, voices made themselves heard not only in Poland, but also in the other countries of the East, such as Hungary and Romania, calling for a revision of the role of the trade unions. They were not heard, and as in the past, the trade unions are locked into the role of driving belt between the workers and the party. Which has generated the most explosive demand of the strikers of Gdansk, who demand the dissolution of the Central Council of Trade Unions and the creation of free unions.

This demand, which the strikers have apparently not abandoned, makes it impossible for the Polish leaders to continue to present the movement as purely "economic." This is what gives a new dimension to the crisis and puts Mr Gierek up against the wall. It is in effect practically impossible for him to defuse these "political" demands with "economic" concessions, however grave may be the country's situation on the economic plane: external indebtedness is breaking all records, energy costs--despite the increase in the price of coal--get heavier all the time, and the system of subsidization of food products, ruinous for the Polish state, is shown to be impossible to modify without bringing new protests.

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LEADERSHIP'S ATTEMPTS TO SOLVE ECONOMIC PROBLEMS ANALYZED

London DZIENNIK POLSKI in Polish 9 Aug 80 p 4

[Article by Jozef Wroblon: "Who Will Guide Poland's Fortunes?"]

[Text] E. Babiuch Is in No Position to Undertake Economic Reform

In the wake of Stalin's death, one of the changes instituted in the ruling systems of Warsaw Pact countries was a repeal of the prohibition on obtaining loans from the West. Because Stalin was wary of Westerners even when they were offering dollar loans, he had forbidden Poland, among other countries, to partake of the benefits offered to it under the Marshall Plan. The relaxation of USSR-imposed discipline, continuing to this day, was used to advantage by E. Gierek who by June 1980 drove Poland's debt toward the Western countries to 19.5 billion dollars.

Unforeseen Consequence of Western Loans

Despite their considerable knowledge about Poland's political life, Americans, I believe, had not anticipated the far-reaching results caused by liberal granting of loans to a government incapable of putting them to proper use. Nothing seemed to indicate that an influx of funds, coupled with managerial ineptness, would cause the demotion of P. Jaroszewicz who as prime minister was responsible for the country's economic failure in 1971-80. This development was even more unexpected in view of the fact that P. Jaroszewicz enjoyed the trust of E. Gierek and his superiors, that is to say, he had proper "qualifications" for that post. A lack of trust was the undoing of by far more reasonable men like St. Olszowski and J. Szydlak who had the ambition and potential to correct P. Jaroszewicz's mistakes. They were doomed a long time before the PZPR Congress, whereas Jaroszewicz was only toppled by behind-the-scenes interventions of persons dissatisfied with the course of the congress.

Edward Babiuch's Program

This year's elected Sejm deputies listened in a session to a speech by Edward Gierek who presented an outline of Poland's s [illegible] roblems. It dictated improvement of remuneration for efficient work and lowering of undeservedly high salaries. Further, it included providing support for families in difficult financial conditions and refinement of the principles permitting access to education, medical care and housing. Finally, Gierek provided guidelines covering cadre-selection policies and employee promotion. It was nearly everything that seminar briefings at the Kremlin or in Crimea allow in the area of social issues. The extent of illusory correctness of these unrealistic directives is indicated, among other things, by the fact that even in 1978 a total of 42 percent of gainfully employed persons had earnings below the minimum of indispensable means of livelihood, and subsequent price increases drove them even lower down the scale of meeting their needs, as all of these people earned less than 4,000 zlotys a month.

Transposing those general directives onto problems that were closer to day-to-day life, Edward Babiuch had to accommodate the economic situation in his speech. It is generally known, however, that a prime minister is subject to no scrutiny in Poland. His only test comes in real life. This happens the sooner the more promising are his programs. Therefore, while E. Babiuch referred to price raises as one among the means leading to economic reform, these proved to be, after a few short months, the only item in his program that did not take long to be implemented.

Babiuch's expose gave top ranking to the problem of Poland's foreign debt, indicating the urgency of its reduction. The foreign trade deficit and substantial debt to hard-currency countries result, above all, from mistakes committed over a long period of time. It could be expected, therefore, that in his first speech Babiuch would give primary exposure to the origins of the economic disaster, rather than its consequences that are common knowledge. Before we deal with the tangibles that have remained of that speech, let us first survey its content in brief.

Next to Poland's foreign debt, the prime minister discussed shortfalls in market deliveries, persisting since 1945, though he recognized them as a novel phenomenon thus demonstrating in this regard a poorer grasp of matters of daily life than an ordinary man in the street. Subsequently, charges were leveled against agriculture because of its low output. Mention was also made of difficulties in the deliveries of crude oil and coal, raw materials and other materials, and of oversights in transport investments. Listed only at the end of this long tally of economic flaws were defects in the functioning of authority or, in common parlance, ineptness of ministers and bodies under their control.

The reasons that forced the prime minister to present a list of difficulties under which the entire economy is breaking down are profound and are certainly more serious than official communiques would seem to indicate. Their message is indeed one of "results in the black" but the truth can be actually described as nothing but a "black hole." Thus, it was officially announced that in 1979 the population purchased 73 billion zlotys' worth less of needed articles than people sought to buy. It is a known fact, too, that what was purchased contained at least 10 percent of unnecessary or defective merchandise. In all, it was at least 16 percent less than the public's purchasing power. Imports surpassed the value of exports by $600 million. To this deficit, however, one should add repayment of debt and interest. Altogether they amount to more than $5 billion (repaid from successively incurred and increasingly expensive debts). Grain crops dropped down to levels indicated for 1974, that is, only 15.3 million tons were harvested. In effect, national income decreased 2 percent in relation to 1978.

These telling facts and figures forced E. Babiuch to advance a categorical demand that the plan for 1980 be seriously reduced. Although a decision to this effect by E. Gierek and a Sejm resolution are nothing but a mere confirmation of reports from the statistical office, at the same time, for the new prime minister, they are testimony that he "is not to blame" for the failures suffered up to now. It is doubtful if this is indeed the case. Although E. Babiuch did not sit in the government as Edward No 2, he had, approved, together with Gierek, governmental actions. The modifications enacted by the Sejm will decrease the foreign trade deficit. In the area of export and import alone, they represent a $900-million surplus of imports over exports, although additional loans will have to be obtained to repay the debt and interest. The list of disastrous failures should include woeful industrial performance wherein the costs (of materials) rose 79 percent while the value of (total) output increased a mere 57 billion zlotys. Hence revenue also dropped 61 billion zlotys.

A point of emphasis in Babiuch's speech that could be regarded as having some significance was the granting of various economic entitlements to both nonprivate and private agriculture, though verbalizations to that effect have for years lost all meaning to the Polish farmer. There is some validity bringing a measure of order into the convoluted mysteries of planning in Babiuch's statement indicating the need for putting central plans and local budgets in order. This was a hint addressed to T. Pyka, currently a vice premier in the government and former deputy chairman of the planning commission. His basic qualification for these posts was a close affinity with Gierek. During the period of his activity in the planning commission (after 1970), far-reaching disorganization was allowed in the functioning of this important area of control. Actually, E. Babiuch believes that enhancement of the importance of local plans is tantamount to greater democracy, but this is a topic we will leave aside for the time being.

A Step Ahead Or Into An Abyss?

The only item in E. Babiuch's program to see immediate implementation is the rise in prices for food articles designated for public supply.

It is known that in Poland meat or chocolate are in general as difficult to buy as furniture or atuomatic washers. Regardless of acute shortages of virtually all articles of daily use, however, the prime minister assigned top urgency to regulation of government subsidies for diverse products totaling almost 500 billion annually, and an identical amount of surpluses obtained from other products.

It should be emphasized that those 500 billion zlotys constituted nearly 25 percent of (subdivided) national income per year, and as much as 45 percent in relation to the populations's consumption. It is beyond doubt, therefore, that dealing with a portion of the national income of this magnitude required extensive preparation, preliminary directives and reaching consensus with representatives of the people.

A preliminary analysis of surpluses and shortages in industrial production, farming and other national economic sectors indicates that the bulk of subsidies goes to first-order goods. Despite the institution of commercial prices, annual subsidies are over 67 billion zlotys for meat and meat products, 9.5 billion for fish, 36.4 billion for milk and milk products, 14.3 billion for sugar, and 15.3 billion for grain and grain products. This list should also include subsidies for agricultural supplies. If the latter were not applied, subsidies on first-order foods would have to mount. This group includes 15.7 billion zlotys worth of industrially processed feeds, 5.1 billion worth of artificial fertilizer, 3 billion worth of planting seed, and substantial expenses in assistance to purchase farm machinery.

Living standards of the population are contributorily improved by government-subsidized sales of coal and coke, furniture, and household appliances amounting to 5.8 billion zlotys, along with 79.6 billion zlotys channeled to assistance in communal economy, primarily transport equipment.

At this stage in our calculation, we have accounted for the allocation of 252 billion zlotys, that is, somewhat more than a half of the figure quoted by Babiuch. It can be assumed that approximately 50 billion zlotys are represented by other expenditures related with consumer supply and price supports for export-designated articles. This issue concerns the differences between prices paid for imported goods which were entered at lower cost in domestic industry plans, as well as facilitation of sales of Polish products abroad by way of price reduction.

Despite this, nearly 150 billion zlotys are unaccounted for in our very approximate calculation.

What Is Hiding at the Bottom of the Abyss?

I trust there is nobody in Poland to deny that goods with state subsidized prices include materials designated for military purposes as well. Babiuch's speech completely omits this matter, as has been the practice for 35 years. Yet it is clear that budget allocations for national defense cannot encompass such disbursements because they have to based on price lists that are in force. It is true that from 1975 to 1978 the costs of national defense increased substantially from 47.6 billion to 59.7 billion zlotys. According to calculations conducted both in Poland and abroad, they amount to at least 20 percent of national income. Since (subdivided) national income for 1978 was over 1,965,000,000,000 zlotys, this means that approximately 390 billion zlotys are allocated to military expenditures. It is precisely this difference, that is 330 billion zlotys, that for many years has burdened the country's economy, and its overwhelming significance results from three causes.

First, it constitutes more than 15 percent of (subdivided) national income, which is why the claim about real expenditures on private consumption and investments are untrue. These are, in fact, 15 percent smaller than reported in official statistics. This is confirmed by examining private consumption and the state of investment in industry, construction, transport and farming.

Second, the national defense item of 390 billion zlotys accommodates 60 billion zlotys listed under budgetary expenditures and approximately 150 billion zlotys obtained from price subsidies, but the figure of 180 billion zlotys remains unexplained. It is (approximately) the amount the government has to extricate from diverse sources. Foremost of these is the placement of a substantial portion under investment expenditures in various economic sectors. This is done, for example, through decisions to grant apartments to persons employed by the army in buildings constructed by housing cooperatives; outlays for purchase of equipment indispensable for domestic completion of military production orders, and a host of ad hoc decisions resulting from varied and frequently unpredictable circumstances. This entire group of expenditures amounting to 330 billion zlotys (in 1978) is composed of a tremendous variety of decisions and, most important, it is funded from a great variety of sources, which is why the government has lost track of its size and, in effect, nobody is fully aware of its indispensability or logical justification. This loss of orientation is more detrimental to the economy than is the magnitude of these costs in itself.

Third, the country is suffering very grave damage because of confusion in production processes, confusion that stems from noneconomic pressures related with military-purpose deliveries. To begin with, an enterprise must fulfill its production plan for military items, for which it is accountable not only via its work force bonuses but through dismissal of its director as well. Furthermore, since such items are deficit, government-subsidized products, overfulfillment of the production plan is equivalent to deterioration of profitability (not in the financial aspect but because such products call for increased technological attention). For example, a steel mill manufactured "ground" fine steel rods for military purposes which are much more labor-intensive than "drawn" rods manufactured by the same steel mill to meet the needs of other clients. This fact, however, is in no way reflected in the price, though subsidized. Moreover, preferential military orders reduce availability of productive capacities to other clients and diminish flexibility in modification of production processes to meet requests of domestic and foreign customers. When reorganizing the system of economic management, the government must at all times respect the inviolability of military deliveries in terms of their composition, quality, quantity and prompt completion. These circumstances appreciably increase production costs (due to difficulties in securing supplies of raw materials and other materials). This happens especially in cases where hard-currency imports must be substituted for promised domestic deliveries.

In order to remove these obstacles to even the slightest improvement of the economy, prices of military-purpose deliveries should simply be based on levels dictated by manufacturing costs. Further, to secure financial resources for all kinds of military purposes, budgetary expenditure figures for national defense should be raised. It would be demonstrated then, however, that they represent approximately 20 percent, not 3 percent, of (subdivided) national income. It is obvious that this cannot be consented to by an alliance of countries that allocates sums equivalent to what the Red Cross collects in a street fund raiser as their assistance to starving nations.

"De Profundis Clamavi"

What is going on in Poland now can be called a cry from the depth of despair of the rulers who do not want to lose their positions and the people faced with either extreme poverty or the risk of a bloody uprising. In this situation, it is exceedingly difficult to maintain equilibrium for the government, and even more so for those governed.

Consequently, Babiuch's activity began with measures calculated to buttress his own image. First, using resignation from his post as leverage, he obtained E. Gierek's approval, along with a formal act of the Sejm, to trim the recently enacted industrial production growth plan in 1980 from 3-4 percent down to 2-3 percent together with reduction of profit in the entire economy. On the other hand, export figures were raised (and import deliveries were cut down), with a corresponding deterioration of domestic supply. Next, E. Babiuch persuaded the first secretary of the PZPR to be the one, rather than Babiuch himself, to explain the country's economic calamity in front of TV cameras. Yet these two facts demonstrate only good strategy of E. Babiuch as a party activist, not his qualifications as an economic manager. In the course of his TV appearance, E. Gierek informed the public that a salary reduction was inevitable, while the minister of agriculture on his part announced substantially smaller grain crops than in 1979. The minister of domestic trade also participated in this TV appearance in order to take the blame for reduction of deliveries of goods for the population's needs. The fourth participant, a minister of foreign trade, was the only one to state improvement in the results of foreign trade with hard-currency countries during the first 6 months of 1980, amounting to $200 million.

He made no mention, however, of the lack of resources to pay interest on the incurred loans and to repay debt installments.

Following these tactical preparatory moves, the prime minister took action. Early on, however, he immediately made two errors. First, price rises were initiated without an evaluation of their consequences for working people and without factual evidence that they would involve increases in earnings. The public showed restraint in their assessment of the situation so long as higher pricing concerned newspapers, cigarettes, sewing machines, automatic washers, refrigerators and apartments. People flew into a passion only when meat disappeared from lower-priced general supply stores and became available in greater quantities in commercial stores (at higher prices). Strikes in industrial facilities and in the transport sector sent a tremor through Ursus, Warsaw, Tczew, Swidnik, Lublin and many other cities, including even the principal armament installation of Stalowa Wola. Under the impact of these self-protective actions social awareness of the economic situation increased along with a will to resist the authorities' inept decisions. In an attempt to escape at least a measure of responsibility, the government announced that delayed notification about changes in the sales system and price increases resulted from the oversight of accountable officials.

Numerous circumstances indicate that:

--the government will not undertake (as it did not for 35 years) any essential economic reforms, limiting itself to certain administrative decisions that may include price changes or reorganization of enterprises, industrial associations or even ministries; at the same time, however, there will be growing indignation and bitterness in the nation, enveloping new areas of the country and reinforcing the belief that PZPR-designated authorities are incapable of improving the economic situation;

--it is not possible to govern a country whose population is deprived of representation even through trade unions, while a bureaucratic apparatus claiming that name has at its disposal neither a substantive and comprehensive analysis of the standard of living of the working people, nor a calculation of their future needs, in other works, family budgets.

Another decade has passed, and the compelling question that emerges from the chaos is whether the country's future will be guided by an authority handpicked outside its borders, or whether the government will become a democratic representation of society composed of outstanding specialists selected on the basis of comprehensive evaluation of their qualifications.

8795
CSO: 2600

BRIEFS

ELECTRIC POWER REQUIREMENTS, PLANS--Investments are obviously important for the construction of certain installations, for example, at Belchatow or Polaniec. Delays are occurring, and an additional power output of 1,680 MW is required in 1980 in order to strengthen the power system. In the next 1981-1985 plan, power equipment providing approximately 11,000 MW and heat generating systems having an output of 11,600 giga-calories per hour will have to be put into operation in the electric-power and power-heat generating plants of the public-utility type. In addition, power facilities, primarily transformer stations having a power rating of 36,000 MVA, and approximately 46,000 transmission and distribution lines in the power networks will have to be put into operation. [Excerpt] [Warsaw ZYCIE GOSPODARCZE in Polish No 33, 17 Aug 80 p 7]

CSO: 2600

AMENDED LAW ON ANIMAL RAISING PUBLISHED

Bucharest BULETINUL OFICIAL in Romanian Part I No 57, 9 Jul 80 pp 1-8

/Law No 40/1975 on the Raising and Improvement of Animals/

/Text/ Law No 40/1975 on the Raising and Improvement of Animals*

In the Socialist Republic of Romania, animal husbandry represents an activity of national interest, it having a leading role in supplying to the population meat, milk, eggs and other products of animal origin and to industry raw materials needed to increase the production of consumer goods.

The erection of the multilaterally developed socialist society in our country and the continual raising of the standard of living and the consumption capacity of the population necessitate the raising of zootechny's percentage in agricultural production, through the raising of the populations of animals, the improvement of their productive potential and the improvement of the technologies for efficiently exploiting and utilizing all fodder resources.

For attaining these objectives, the state creates conditions for continual development of animal husbandry, both in the socialist agricultural units and on the population's farms, by allocating large amounts of investment funds for the construction of new zootechnical facilities, by granting loans for the procurement of animals, by staffing the units with specialized personnel, by organizing units specializing in the production of reproductive material, by importing animals from improved breeds and by establishing stimulative prices for animal production and for reproducers with high genetic potential.

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* Republished on the basis of Article II of State Council Decree No 184 of 11 June 1980, published in BULETINUL OFICIAL AL REPUBLICII SOCIALISTE ROMANIA, Part I, No 46, 13 June 1980, with a new numbering being given to the articles.

Law No 40/1975 was published in BULETINUL OFICIAL, No 134, 25 December 1975.

In order to fully utilise the soil, climatic, social and economic conditions existing in different zones of the country, the Ministry of Agriculture and the Food Industry, together with the people's councils, organizes zootechnical production on a territorial basis and is responsible for the achievement of animal production.

For the further development of animal husbandry, the Academy of Agricultural and Silvicultural Sciences, through the specialized research units and the institutes of agronomic higher education, participates in the activity of devising and applying the most efficient methodologies of breed improvement, in the expansion of the use of improved reproductive material in the production units, and in the improvement of the husbandry technologies and is responsible for their application and implementation according to the zones and the groups of units that are assigned to them.

The creation of a unified legal framework regarding the raising, improvement and reproduction of animals is required in order to fulfill these tasks.

To this end, the Grand National Assembly of the Socialist Republic of Romania adopts the present law.

Chapter I
Animal Husbandry

Article 1. Animal husbandry is an activity of national interest and has as a goal the supplying of the population at the level of the growing consumption requirements and the meeting of industry's needs for raw material with products of animal origin.

The development of animal husbandry is achieved in accordance with the National Program for Development of Zootechny and Growth in Animal Production, whose provisions are binding on all possessors of animals.

Article 2. For the development of animal husbandry, the establishment of the percentage of the species according to geographical and administrative zones, and the selection of the breeds and of the systems of raising and exploitation, the Ministry of Agriculture and the Food Industry and the executive committees of the county people's councils and that of the municipality of Bucharest will provide for the better utilization of pastures and hayfields, especially those in hilly and mountain zones, and of all fodder resources in agriculture, the food industry and other activities of the economy.

Article 3. In order to continually improve the population's supply of animal products and avoid the expenses caused by the transportation of products over long distances, the Ministry of Agriculture and the Food Industry, together with the people's councils, will provide in each county the conditions needed to develop animal husbandry, which should meet its own consumption needs and achieve the reserves arranged by means of the plan.

Article 4. In socialist agriculture, benefiting from the multilateral support of the state, the development of animal husbandry will be oriented further toward the concentration, specialization and integration of production and will be achieved through the construction of new, rationally dimensioned units and the modernization of the existing ones.

Article 5. The socialist agricultural units have the obligation to keep the animal shelters, the outbuildings and the technical resources on hand in optimum condition, in conformity with the technical instructions, and to keep the technical equipment in permanent operating condition.

The changing of the purpose of the zootechnical constructions or the resources on hand is permitted only with the approval of the higher-ranking body.

Zootechnical constructions with a value of over 200,000 lei cannot be removed from the animal production circuit except with the approval of the Ministry of Agriculture and the Food Industry.

Article 6. The state supports the development of animal husbandry on the population's farms, providing:

Reproducers, through the communal mating stations;

Seminal material and technical assistance for artificial insemination in animals, free of charge;

Technical assistance and financial resources for the improvement and arrangement of natural meadows, in order to increase the fodder resources;

The right to use, on easy terms, state-owned pastures and hayfields, as well as pasturable forests, in accordance with the legal provisions;

Some assortments of fodder for the animals and products contracted for with the state, under the conditions provided by law;

The awarding of bonuses for each heifer at the first calving;

Technical advice through personnel with specialized training, veterinary assistance, and medicine for veterinary use;

Loans, on easy terms for raisers, in order to procure production animals.

The population in villages and cities can buy or take over on a contractual basis from the socialist agricultural units animals and poultry for raising and fattening.

Article 7. For raising the contribution of the population's farms to increasing the vegetable and animal agricultural production and meeting their own consumption needs with meat and other animal products, all inhabitants in rural and urban areas who possess farmland are obligated to cultivate it and to raise animals and poultry.

The farmland cannot be possessed except by the physical persons who cultivate it and raise animals and poultry, under the conditions provided by law.

The vegetable and animal production obtained on the population's farms will be used for the food needs of the producers and their family members, and the extra quantities will be able to be utilized, under the conditions provided by law, on the market or through contracting and purchases for the state supply.

Article 8. The executive committees and bureaus of the people's councils are responsible for the complete and efficient use of farmland, for the fulfillment of the plan for populations of animals and poultry on the population's farms, for the creation of the resources of animal products needed to meet the needs of the own consumption of the population in their range of activity, and for the fulfillment of the plan targets for contracting for and delivering to the state supply animals, poultry, milk, eggs and other animal products.

Article 9. The executive committees of the county people's councils and that of the municipality of Bucharest will assign and transmit annually to the executive bureaus and committees of the communal, city and municipal people's councils the plan indicators concerning the populations of animals that must be raised by the population's farms.

On the basis of the plan targets received, the executive bureaus and committees of the communal, city and municipal people's councils will draw up animal- and poultry-raising programs for each farm in territorial-administrative range, so that each can fulfill the obligation to raise animals and poultry.

The number of animals and poultry that can be raised by each farm for its own needs, for sale on the market or for contracting or purchases is unlimited.

The executive bureaus and committees of the communal, city and municipal people's councils will include in the programs concrete targets for each farm, on the basis of wide consultation with the citizens, establishing the number of animals and poultry, the production and the deliveries to the state supply, in correlation with the targets for economic and social development of the territorial-administrative unit. Targets for cultivating all areas and planting fruit trees and bushes, the agricultural output that will be obtained and the deliveries of vegetables, potatoes, fruit and other produce to the state supply will also be established accordingly.

The programs for developing the populations of animals and poultry are subjected to discussion by the general assemblies of the inhabitants in communes and become binding on all inhabitants in rural areas, after their adoption by the people's councils.

Article 10. The executive bureaus and committees of the people's councils will give the population's farms the support needed to develop their production base and will seek to provide the conditions needed to fulfill the tasks assigned to them, for increasing the vegetable and animal agricultural production and achieving the deliveries to the state supply.

To this end, the executive bureaus and committees of the people's councils will take the following steps:

a) The land in the possession or use of the inhabitants and that under the administration of the executive bureaus or committees of the people's councils will be cultivated completely with vegetables and potatoes, planted with fruit trees and bushes and cultivated with fodder plants or other farm crops, in accordance with the programs established;

b) The natural meadows administered by the executive bureaus and committees of the people's councils and the pasturable land in the forest reserves will be allocated, according to law, with priority to citizens who contract to deliver animals and animal products to the state supply.

The members of the agricultural production cooperatives, besides the measures stipulated in the preceding paragraph, benefit from facilities established by the general assembly of the agricultural cooperative, such as:

a) The granting of roughage and of land areas, for fodder production in the catch crop, with priority to contractors for animals and animal products;

b) The allotting of areas of hayfields, for harvesting with payment in kind, only to contractors for herbivores or for animal products from them.

Article 11. Distinct targets for the raising of piglets and chicks, which are to be sold to the animal raisers who contract to deliver animals, animal products and poultry to the state supply, will be established, within the framework of the plan, for the socialist agricultural units.

The socialist agricultural units are authorized to organize, beyond their plan targets, the production of chicks, piglets and rabbits that they may turn over, together with some quantities of fodder for raising and fattening, on a contractual basis, to producers on the population's farms that have conditions of space and certain possibilities of feeding and possess the necessary manpower.

The payment for the work of the producers will be made to the account of the respective agricultural unit on the basis of the rates established for the weight of the fattened or raised animals that have been delivered to the state supply, at the weights stipulated by means of the contract.

Article 12. The units of the consumer cooperative system will participate in the fulfillment of the targets for increasing the populations of animals on the population's farms, through the organization of stock farms for sows and day-old chicks, in order to obtain products that may be sold to the animal raisers.

Article 13. The Ministry of Agriculture and the Food Industry, the National Union of Agricultural Production Cooperatives and the Committee for Problems of the People's Councils will take the steps needed to provide the population's farms with seeds and planting stock, with chemical fertilizer, with purebred animals for mating and with zooveterinary assistance. In addition, they will create possibilities of the rental or purchase of farm implements and animal-drawn agricultural machines by the population's farms and will provide service with tractors and agricultural machines for the mechanized performance of the necessary work on the land used by these farms.

Article 14. The socialist units within which cafeterias operate, the public food units, the tourist chalets and other such units are obligated to organize subsidiary activities for raising animals and poultry, through the utilization of all food scraps and other available resources, for meeting their own needs, within the established consumption quotas, and for utilizing the surplus for the state supply.

Article 15. In order to provide the population's farms with animals for raising and fattening, the Ministry of Agriculture and the Food Industry, together with the people's councils, will take steps to increase the breeding stock on these farms. To the same end, they will support the organization of the production of piglets, chicks and other species and categories of animals, both within the population's farms and within the animal-husbandry associations or through the consumer cooperatives in the locality.

The people's councils and the agricultural bodies will support the founding of the animal-husbandry associations and the organization by them of the actions connected with the improvement of livestock, the raising of animal production, the improvement and use of meadows, the mechanization of work in zootechny, the guarding of the health of the animals and the protection of them, and the contracting for and the sale of the production.

Article 16. In order to meet the need for fodder for the animals possessed by the socialist units and the population's farms, the Ministry of Agriculture and the Food Industry, together with the people's councils, will organize the production of fodder, will provide for the development of the material base for the production of mixed feed and will keep track of the manner of conservation and use of all fodder resources, in conformity with the standards in force.

Article 17. The Ministry of Agriculture and the Food Industry will draw up technical standards for raising and exploiting the animals, varying according to systems of raising, according to geographical zones and according to forms of ownership, based on the results obtained by the specialized research units. These standards are binding both on the socialist agricultural units and on the population's farms.

Chapter II
The Improvement of Animals

Article 18. The improvement of livestock, in the sense of increasing the genetic potential, is achieved on the basis of the improvement programs drawn up by the Ministry of Agriculture and the Food Industry. The methodology of selection, the husbandry technology, the volume of activity and the organizational framework for the production, quality control, and use of the reproductive material from each species of animal are established by means of these programs.

The production and use of reproductive material are achieved within the framework of the program for zoning of animal husbandry and have as a goal the fulfillment of the annual and long-term plans.

Article 19. By "reproductive material," in the sense of the present law, is meant:

a) The male reproducers and the young males kept for verifying their own performances;

b) The young males and females kept for testing the parents or collateral relatives from the cattle, swine, sheep, goat, horse, rabbit and furred-animal species;

c) The females from the cattle species, in their entirety, and the females from the swine, sheep, goat, bubaline, horse, rabbit and furred-animal species contained in the breeding records and approved on the basis of certificates of quality;

d) The lines and nuclei of certified poultry, as well as the eggs for incubation and the day-old chicks that have been obtained from these lines or from combinations of lines selected for the production of hybrids;

e) The nuclei of animals and poultry utilized for the creation of new breeds, types, lines or hybrids;

f) The seminal material used in artificial insemination and the zygotes utilized in the work of transplantation.

Article 20. For the production, quality control, and use of the reproductive material for animals, the Ministry of Agriculture and the Food

Industry, through its specialized bodies, bears the responsibility and provides for:

a) The organization and operation of the units that produce reproductive material, by continually concentrating the elite animals in order to form nuclei of the greatest zootechnical value;

b) The organization and operation of the units and work points at which the testing of the animals that are selected for maintaining and improving the elite nuclei and for providing reproducers for the rest of the livestock is done, on the basis of their own performances and the offspring;

c) The production of the assortments of feed necessary to the units at which work of testing and selection is done, in accordance with the formulas required by their technology, in order to correctly determine the genetic potential, and the organization of the production of fodder for the rest of the livestock, at the level required by their productive potential;

d) The inclusion of the livestock needed to achieve the improvement work, from the best nuclei of animals existing at the socialist agricultural units and on the population's farms, in the official production inspection, in order to know the productive capacity of the animals and identify the most valuable specimens;

e) The guaranteeing by the state of the zootechnical quality of the reproductive material, noted in certificates of quality issued after the official production inspection;

f) The recording of the specimens that, through the value of their performances, can contribute to the improvement of the breeds in the state genealogical registers;

g) The management of the supply of reproducers and the reproductive material, through the controlled allocation of them, for satisfying the requirements in all zones and systems of animal husbandry;

h) The importation of animals, poultry, eggs and seminal material from the improved breeds and types that can be utilized under the climatic and technical operating conditions of the production units in our country, with the guaranteeing by the exporters of their indemnity for specific contagious diseases;

i) The guarding of the health of the livestock subjected to selection through the continual providing of preventive and curative health and veterinary assistance, given by the own veterinary personnel of the units that possess them or of the health and veterinary districts.

Article 21. The Academy of Agricultural and Silvicultural Sciences, through the subordinate specialized research units, has the obligation and bears the responsibility regarding:

a) The continual perfecting of the methods of improvement and of the programs or instructions for applying them;

b) The management of the work of creating new breeds, types, lines or hybrids of animals and poultry;

c) The guidance of the work of studying the adaptive capacity of imported reproductive material and the establishment of the method of using it in the animal-improvement process;

d) The devising and the pursuit of the application of new animal-raising and -exploiting technologies;

e) The production and furnishing of reproductive material with a high genetic value, from its own units possessing animals.

Article 22. The organization, management, coordination and guidance of the actions of producing and using the reproductive material for animals are in the charge of the Ministry of Agriculture and the Food Industry and are achieved through specialized units that have as an object:

a) The production, raising and maintenance of the reproductive animals with a role in improving the livestock;

b) The testing of reproductive material on the basis of its own performances or on the basis of offspring;

c) The multiplication of the selected animals by means of pure breeding or by means of crossbreeding;

d) The production, preservation and furnishing of the seminal material for artificial insemination or of the zygotes used in the work of transplantation.

Article 23. In order to determine the productive potential of the animals in the specialized units, stipulated in Article 22, the feeding will be done in accordance with scientifically substantiated standards, diets and formulas devised by the specialized research units, approved by the Ministry of Agriculture and the Food Industry and applied only in the units with this type of activity.

Article 24. The Ministry of Agriculture and the Food Industry organizes, manages and guides the work of judging and certifying the quality of the reproductive material for animals, through the units that have as an object of activity the performance of the official production inspection.

The reproduction and selection units also have the task of guiding and supervising the way in which the use of the selected reproductive material is done in the production units and of providing for its dissemination and pursuing its reproduction.

For ensuring the accurate processing of the data resulting from the production inspection and for increasing the effectiveness in making the decisions on selection, the national reproduction and selection unit will organize the automatic data-processing system.

The official production inspection refers to the recording of the performances of the animals subjected to selection and to the respecting of the conditions of maintenance, feeding and care in the units that produce, test or receive for use improved reproductive material.

Article 25. The quality of reproductive material and its value are confirmed by means of certificates of origin and productivity issued by the county reproduction and selection unit that performs the production inspection for animals.

Certificates will not be issued except for the animals that are registered by means of numbers or codes applied directly on a part of the body or by means of standardized ear tags.

The system of registering the animals and marking the other reproductive material is established by the Ministry of Agriculture and the Food Industry.

Article 26. Pure breeding will be used as a chief method for improving the livestock.

The multiplication of the animals stipulated in Article 20, letters a and f, will be done only by means of pure breeding.

The work of crossbreeding and hybridization, done in order to increase the productive capacity of the animals and poultry in the production units, will be achieved in a controlled fashion, with the technical support and under the guidance of the units that perform the official production inspection, on the basis of scientifically substantiated programs drawn up through the Academy of Agricultural and Silvicultural Sciences by the specialized research units and approved by the Ministry of Agriculture and the Food Industry.

Article 27. The male reproducers--bulls, boars, rams and stallions--used at the units that produce seminal material and at the communal mating stations and points and the entire populations of animals in the units included in the provisions of Article 22, letters a and c, are subjected annually to evaluation and classification.

The organization and performance of the work of evaluation, the technical standards and the methodology for judging the reproductive material will be established by the Ministry of Agriculture and the Food Industry.

For verifying the origin of the reproducers and the quality and healthiness of the seminal material and for judging the production of the animals subjected to the official inspection, the national reproduction and selection unit will found, with the approval of the Ministry of Agriculture and the Food Industry, its own laboratories, which will also function as laboratories for expert evaluation.

Article 28. The approval of the new breeds, types, lines and hybrids of animals, poultry, bees and silkworms that are achieved in the research and production units and by the population's farms is done by the Ministry of Agriculture and the Food Industry, on the basis of the conclusions drawn from the analysis of the results obtained in the verification work advised by the Zooveterinary Council.

The verification work is organized in centers for approval of the performances of animals by the units that perform the official production inspection and is done under the conditions established by means of verification protocols drawn up together with the specialized central research unit, it extending over at least two successive generations.

In the case in which it is considered necessary, nuclei of animals from the imported breeds or those that are intended to be imported are also subjected to the same verification.

Article 29. In order to recognize and popularize the socialist agricultural units and the raisers that distinguish themselves in the activity of raising livestock of great zootechnical value and in using a modern technology of exploitation, the Ministry of Agriculture and the Food Industry and the executive committees of the county people's councils and that of the municipality of Bucharest will annually organize animal and poultry fairs with the establishment of the county, zonal and national champions of the breed and with the awarding of incentives in money, objects and certificates, within the limits of the funds that have been allocated to them for this purpose.

Chapter III

The Organization of the Reproduction of Animals

Article 30. The activity of reproduction of animals has as a chief objective the rational use of the breeding stock and the young breeding stock, the continual raising of the birth rate and the obtaining of more valuable products that express the improved genetic potential as a result of the improvement work done.

Article 31. For performing the tasks stated in Article 30, annual indicators of birth rate according to species of animals and according to counties will be established in the sole national plan for economic and social development.

On the basis of these indicators, the managements of the socialist units will prepare, with the technical assistance of the reproduction and selection units, mating and birthing plans for the animals belonging to these units.

For the animals on the population's farms, the mating and birthing plan is prepared by the local specialized personnel, together with the possessors of animals.

Article 32. Male reproducers can be used only after authorization.

The authorization of the use of male reproducers is done, for natural mating, by the county unit and, for artificial insemination, by the national unit that performs the official production inspection.

The reproducers reaching mating age for which use has not been authorized are subjected to sterilization.

Article 33. The production of reproductive material is provided as follows:

a) The male reproducers and the young males meant for testing their own performances will be produced by the units stipulated in Article 22, letters a, b and c, and by other socialist units or by the population's farms, from the animals included in the official production inspection, by means of listed pairings;

b) The young males and females needed for testing the parents or collateral relatives will be produced by means of controlled pairings, both in socialist agricultural units and on the population's farms, on the basis of the contract concluded with the units within which work of testing is organized, with the possessors having the obligation to furnish them on the agreed date and under the agreed conditions;

c) The female reproductive material from the cattle species will be produced in the socialist agricultural units and on the individual farms from their own breeding, and the female reproductive material from other species, stipulated in Article 19, Letter c, is produced in the socialist agricultural units or on the population's farms from animals included in the official production inspection;

d) The calves will be retained in their entirety and raised for reproduction.

The cow-raising zootechnical units will take steps to provide, within the existing space, sectors for separately raising and tending the bull calves and the heifers until mating.

Mating with suitable breeds, specific to the respective zone, will be provided for all heifers, and the selection of them for reproduction or for culling will be done only after calving in relation to the results obtained in the first production cycle.

In wholly special cases, due to incurable diseases that make them unfit for reproduction, the calves will be able to be butchered only with the approval of the health and veterinary inspectorate;

e) The selected lines of poultry, the eggs for incubation and the day-old chicks will be produced by the poultry-breeding units and by the population's farms, members of the association of breeders, with the authorization of the unit that performs the official production inspection;

f) The nuclei used to create new breeds, types or lines are formed in scientific research units and, by way of exception, in other agricultural units or on the population's farms, under the control and guidance of the specialized research unit under the Academy of Agricultural and Silvicultural Sciences;

g) The seminal material for artificial insemination will be produced as follows:

Frozen seminal material and zygotes for transplantation, in the specialized units authorized by the Ministry of Agriculture and the Food Industry;

Refrigerated and fresh seminal material, until its replacement with frozen seminal material, in the county reproduction and selection units or in subunits for artificial insemination;

Seminal material for experimental work, in research units, on the basis of the annual plan of subjects.

The seminal material is furnished or is disseminated along with a waybill, issued by the producing unit, that confirms its origin and quality.

Article 34. The activity of reproduction by means of artificial insemination is organized by the county reproduction and selection units or by state agricultural units, which are responsible for the proper operation of the artificial-insemination points in their range of activity.

The operations regarding artificial insemination will be performed by livestock experts and veterinarians, who are responsible for the results of this work. Until the need for such personnel is met, other, specially instructed personnel can also be utilized to perform this activity, under the same conditions of responsibility.

The right to perform artificial insemination is given on the basis of a permit issued by the county reproduction and selection units.

In the state agricultural units and in the agricultural production cooperatives, the farm foreman is responsible for the activity of reproduction and artificial insemination. The veterinarians and specialized personnel who perform artificial insemination are responsible for the fulfillment of the mating and birthing plan for the animals on the population's farms.

Article 35. In the localities in which artificial insemination of animals is not practiced for one or more species, the executive bureaus or committees, respectively, of the communal, city and municipal people's councils will organize communal mating stations, under the guidance of the local personnel with zootechnical or veterinary training who have in their responsibility the mating and birthing plan for the animals on the population's farms.

In the localities in which the stock of cattle, sheep, goats, horses and swine for organizing a communal mating station is not congregated, including the localities in which agricultural production cooperatives are organized, when their situation requires it, the executive bureaus or committees, respectively, of the communal, city or municipal people's councils will set up mating points, with state-owned reproducers or with authorized reproducers that belong to the population's farms.

Article 36. The use of reproductive material and its multiplication in the production units in order to increase the populations of improved animals are done in conformity with the reproduction program prepared by the Ministry of Agriculture and the Food Industry, on the basis of a uniform methodology, in accordance with each system of reproduction and each species of animal.

Article 37. The Ministry of Agriculture and the Food Industry, the executive committees of the county people's councils and that of the municipality of Bucharest, and all possessors of animals have the obligation to provide for the normal process of reproduction, for all species of animals, with high-quality reproducers, in accordance with the established standards.

The allocation of reproducers for the production of frozen or refrigerated seminal material and for natural mating is done annually by the Ministry of Agriculture and the Food Industry, at the proposal of the national reproduction and selection unit, on the basis of the need established on the occasion of the work of evaluation.

Article 38. The reproducers from the cattle, sheep, swine and horse species will be procured exclusively from the breeds stipulated on the zoning map and only from the units subjected to the official production inspection.

The furnishing of male reproducers is done with the technical assistance of the county reproduction and selection unit in whose range the supplying unit is found. The reproducers furnished will be accompanied by certificates of origin and productivity and by health and veterinary certificates.

Article 39. The financial resources needed for the procurement of reproductive animals are formed, for the state agricultural units, from their own circulating funds and, at the other specialized units and at the people's councils, from the investment funds.

In the cooperative agricultural units, the reproductive material is procured from their own development fund and from long-term loans, in conformity with the legal standards in force.

The seminal material, including zygotes, produced in the units that process frozen seminal material is furnished at cost to the purchasing units.

The reproduction and selection units pay for seminal material from budgetary funds under the conditions and at the prices that will be established by the Ministry of Agriculture and the Food Industry, with the advice of the Ministry of Finance, and disseminate it free of charge to the agricultural production cooperatives, the intercooperative economic associations and the population's farms.

Article 40. The male reproducers from the cattle species tested on the basis of offspring are treated as fixed assets and are excepted from amortization. In addition, the other reproductive animals treated as fixed assets, from the specialized units subordinate to the Ministry of Agriculture and the Food Industry and from the people's councils, are not amortized.

Article 41. In order to know at any time, according to breeds, the number and the quality of the reproducers in the artificial-insemination or natural-mating units and in the other socialist units, as well as the right to use them, the record of reproducers will be kept nominally as follows:

a) The national reproduction and selection unit will keep the record of imported bulls, stallions and rams, of those used in the production of frozen seminal material, and of those in the county reproduction and selection units, with the possessing units being obligated to report on the inclusion and exclusion of reproducers;

b) The county reproduction and selection units will keep the record of the state-owned reproducers, procured from the funds allocated to the counties, that they have under administration and of the other reproducers authorized for mating, regardless of ownership;

c) The socialist agricultural units and the executive bureaus or committees, respectively, of the communal, city and municipal people's councils will keep the record of the reproducers on hand or allocated for temporary use.

Article 42. The specialized technical bodies, the socialist agricultural units and the population's farms are obligated to keep, in conformity with the technical standards drawn up by the Ministry of Agriculture and the Food Industry, the pedigreed male and female reproducers in conditions that ensure high fecundity and prolificacy and the prevention of miscarriages, of losses of pregnant animals, and of mortality in birthing or after birthing and to record and report the results obtained.

The veterinarians and experts in the units are obligated to take steps to prevent and treat reproductive disorders in animals and to perform the diagnosis of gestation, in conformity with the rules established by the Ministry of Agriculture and the Food Industry.

Article 43. The Ministry of Agriculture and the Food Industry, together with the Ministry of the Chemical Industry and the other central bodies with tasks in providing for the production of preparations and medicine for veterinary use, will take steps to continually meet from domestic production the need for biological and medicinal products for preventing and combating reproductive disorders in animals.

The treatment of reproductive disorders in the cattle in the cooperative agricultural units and on the population's farms is done free of charge.

Chapter IV
Responsibilities and Penalties

Article 44. The violation of the provisions of the present law results in disciplinary, material, civil, contraventional or penal responsibility, as the case may be.

Article 45. The following constitute infractions:

a) The production of frozen seminal material outside the authorized units or from the reproducers for whose use permits have not been issued;

b) The dissemination of the seminal material produced outside the authorized units or from the reproducers for whose use permits have not been issued;

c) The act of disseminating out of fault the seminal material produced under the conditions stipulated in Letter b.

The infractions stipulated in letters a and b are punishable with imprisonment from 6 months to 5 years.

The infraction stipulated in Letter c is punishable with imprisonment from 1 month to 2 years or with a fine.

Article 46. The declaration of untrue data regarding the origin, age, productive performances, or state of health of reproductive material constitutes an infraction and is punishable with imprisonment from 3 months to 2 years or with a fine.

Article 47. The performance of artificial insemination by unauthorized persons constitutes the infraction of practicing a profession without the right and is punishable in conformity with Article 281 of the Penal Code.

Article 48. The following acts constitute contraventions to the provisions of the present law, if they are not committed under such conditions that, according to criminal law, they constitute an infraction:

a) The refusal to perform the animal-husbandry tasks established by the people's councils in accordance with Article 9;

b) The failure to comply with the technical standards with regard to numerically providing the male reproducers used in natural mating, in accordance with the established number of females;

c) The failure to comply with the plan of listed pairings, the depreciation of reproductive material, the unauthorized alienation of it or the butchering of it that cannot be justified by means of the health and veterinary certificate;

d) The use of unauthorized males for mating with females;

e) The changing of the purpose of zootechnical constructions in violation of the provisions of Article 5, paragraphs 2 and 3;

f) The preservation of seminal material or of eggs for incubation under conditions that cause their depreciation;

g) The failure to provide for individualization or the individualization that creates doubts about the identity of the animals subjected to the official inspection, of the animals used in the work of testing the male reproducers, and of seminal material or of eggs for incubation;

h) The act of entering, out of fault, erroneous data regarding the origin, age, productive performances and indices of quality of seminal material or the state of health of reproductive material in the zootechnical record, in the certificates concerning the quality of reproductive material, or in the veterinary certificates;

i) The use of unauthorized males as reproducers for mating or the refusal to sterilize them.

Article 49. The contraventions stipulated in Article 48 are penalized as follows:

The contraventions stipulated in letters a, b, c and d, with a fine from 300 to 1,500 lei;

The contraventions stipulated in letters e, f, g and h, with a fine from 1,000 to 3,000 lei;

The contravention stipulated in Letter i, with a fine from 1,000 to 3,000 lei and confiscation of the animal.

The contraventional penalites can also be applied to legal persons. The fines applied to legal persons will be charged by them to the physical persons at fault.

Article 50. The ascertainment of contraventions and the application of penalties are done by representatives of the minister of agriculture and the food industry, in the central apparatus of the ministry, in the reproduction and selection units and in the apparatus of the county agricultural bodies and that of the municipality of Bucharest, and by mayors.

Article 51. The provisions of articles 48-50 are supplemented with those of Law No 32/1968 on the Establishment and Punishment of Contraventions.

Chapter V

Final Provisions

Article 52. The present law goes into effect 60 days after the date of publication in BULETINUL OFICIAL AL REPUBLICII SOCIALISTE ROMANIA.* On the date that it goes into effect, any contrary provisions are repealed.

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* With the exception of the provisions of articles 7-14 and of Article 33, Letter d, which are applied from the date of publication of State Council Decree No 184/1980.

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CONSTRUCTION WORK IN FOREIGN COUNTRIES, 1974-1979

Belgrade EKONOMSKA POLITIKA in Serbo-Croatian 14 Jul 80 pp 21-24

> **[Text] According to date recently published by the Federal Bureau of Statistics, Yugoslavian building contractors completed capital investment projects with a value of about $1.2 billion outside the borders of the SFRY [Socialist Federal Republic of Yugoslavia] last year. This is an increase of 8.9 percent over the total for 1978. Construction projects were carried out in 48 countries, of which 15 were in Asia (with a value amounting to 34.1 percent of the total given above), 13 were in Africa (32.7 percent), 13 were in Europe (32.5 percent), and 3 were in South America. Work completed in the developing countries accounted for 67.4 percent of the total; in the industrialized countries, 17.4 percent, and in the socialistic countries of Eastern Europe, 15.2 percent. What is the story behind these data?**

The fundamental reason that building contractors have taken on jobs in foreign countries is to employ their construction capacity more fully, especially since the demand for their services in the domestic market has not had a uniform rate of growth. Moreover, this type of employment offers possibilities for the creation of claims payable in foreign currency, or for the import of certain equipment and material. No less a motive is the better earnings, especially for skilled workers belonging to construction and related organizations. Finally, there is both a broader motive and interest for contractors to go abroad. This concerns the possibility of exporting other goods and services, of exchanging techniques and technology, and in general of creating a basis for a higher form of economic collaboration with foreign countries.

The present level of involvement of building contractors in foreign countries is rather modest if one is concerned with the realization of these efforts. The number of domestic workers employed in the construction of capital investment projects abroad is between 3 and 4 percent of the total number employed in Yugoslavian construction (Table 1). It would be difficult to maintain that the level of employment in foreign countries is a crucial factor of stability, taking into consideration the level of employment in the construction industry as a whole. Nor does the fact that the worker employed on projects which are being constructed for foreign investors realizes 2.5 to 3 times greater total income than his colleague employed on domestic construction projects (or about 1.5 times if workers of the domocile country are also included in the number employed on foreign building sites) change the accuracy of this statement.

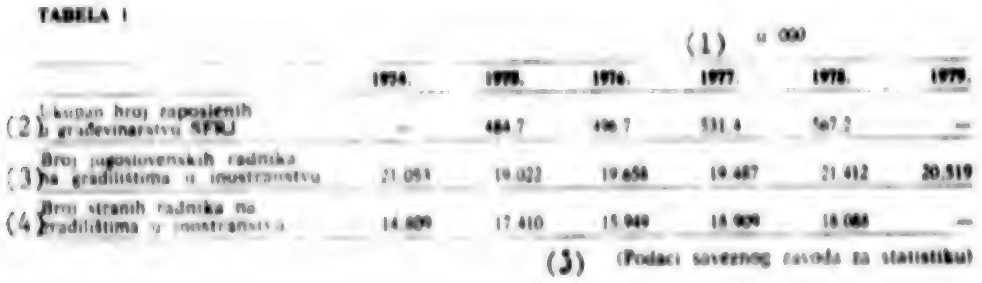

TABELA 1

(1) u 000

	1974.	1975.	1976.	1977.	1978.	1979.
(2) Ukupan broj zaposlenih u građevinarstvu SFRJ	—	484.7	496.7	531.4	567.2	—
(3) Broj jugoslovenskih radnika na gradilištima u inostranstvu	21 093	19 022	19 656	19 487	21 412	20.519
(4) Broj stranih radnika na gradilištima u inostranstvu	14 809	17 410	15 940	18 909	18 088	—

(5) (Podaci saveznog zavoda za statistiku)

Table 1.

Key:

1. In thousands
2. Total number employed in construction in SFRY
3. Number of Yugoslav workers on construction sites abroad
4. Number of foreign workers on construction sites abroad
5. (Data from the Federal Bureau of Statistics)

The income in foreign currency from the performance of capital investment work in foreign countries amounts to about 40 percent of the total value of this work. Of course, we are speaking here of the average amount (in the last 5 years), which means that in a certain, albeit smaller, number of jobs, a significantly greater foreign currency income is realized (the most frequently cited example in this regard is the Belgrade Autoput construction firm, which realized a foreign currency income of 75 percent of the value of the completed work in jobs for the government of Gabon in 1976 and 1977). The share of the income from foreign currency from capital investment work abroad which is realized on the basis of the export of domestic equipment and materials is far less than the share which is obtained from nongoods foreign currency income (in which again the most important item is the export of the work force). The value of domestic equipment and materials used in projects which our contractors have built for foreign customers in the last several years has amounted to between 5 and 7 percent of the total value of the work. Moreover, the value of the equipment itself made up between 4 and 5 percent of the value of the investment.

It is estimated that the cost of materials and equipment ranges from between 60 to 80 percent in the total expenses involved in the construction of capital investment projects. More precise data cannot be given because this amount varies greatly depending on the type of project. As a rule, it is higher with projects involved with hydraulic engineering (especially hydroelectric projects), somewhat lower with low-rise construction projects, and the lowest with high-rise construction, where the significant items are skilled workers (in building trades), with a relatively high level of manual labor.

It is apparent from the data provided by the Federal Bureau of Statistics (Table 2) that more than half of the working capacity of Yugoslavian contractors employed in foreign countries is involved in high-rise projects (the only exception is 1975). The level of high-rise construction is proportionally the highest in the industrialized countries and the lowest in the developing countries. The more valuable, or the more complex job, which besides the export of construction services also means the export of materials and equipment, is, therefore, "easier" to obtain in the less-developed countries, which, along with the fact that developing countries are, of course, unable to construct capital investment projects with their own operations and are directed to the import market, is the main reason that our contractors turn to this market.

TABELA 2.

(6) u mil. dolara 1 USA $=18.25 din

	1974.	1975.	1976.	1977.	1978.	1979.
(7) Vrednost inv. radova u inostranstvu — UKUPNO	490.2	603.4	826.9	1 251.3	1 118	1 216
od toga: (8) Visokogradnja	311.4	321.0	471.2	664.1	647.4	—
(9) Niskogradnja	72.2	164.8	109.8	289.1	252.3	—
(10) Hidrogradnja	100.4	196.0	226.1	280.3	205.1	—
(11) Projektovanje	6.2	11.6	13.6	14.8	13.0	15.5
po regionima: (12) Zemlje u razvoju	274	431	532	849	769	819
(13) Soc. zemlje Istočne Evrope	106	109	143	189	190	185
(14) Razvijene zemlje	170	153	144	213	153	211

(15) (Podaci saveznog zavoda za statistiku)

Table 2.

Key:

6. In millions of dollars; 1 USA $ = 18.25 dinars
7. The value of capital investment work in foreign countries - Total
8. Of the total: High-rise
9. Low-rise
10. Hydraulic engineering projects
11. Planning
12. According to regions: Developing countries
13. Socialist countries of Eastern Europe
14. Industrialized countries
15. (Data from the Federal Bureau of Statistics)

Measured by the value of work carried out, over two-thirds of the capacity of Yugoslvian contractors employed in foreign countries is engaged in the developing countries (Table 2). Moreover, the level of this engagement is increasing the most uniformly (the exception was in the year 1977, when the final account of unpaid claims from earlier years was carried out). There has been a modest growth in activity in the socialist countries of Eastern Europe for the last 6 years (with the exception of 1979), while in the industrialized countries it has fluctuated.

Lack of Involvement in Planning

One can conclude from these data that our construction organizations have mainly been the physical performers of foreign projects and technological determinations which also anticipate the use of foreign equipment and materials, or that as contractors they have been large buyers of the equipment and materials as well (the jobs for which this cannot be said are the exception, such as the capital investment work in Iraq where more of Yugoslavian plans and technological determinations are being used).

One reaches the same conclusion by also examining the participation of planning in capital investment work which has been completely finished in foreign countries (Table 2). The small part of the planners, on both an absolute and a relative level, in the capital investment work which has been completely finished (about 1.5 percent) is the result of the fact that on the whole they are hired independently, and this involvement is only in the extension of planning services or in the development of planning documentation for the performers of the work who have accepted the job on the basis of foreign offers. Only exceptionally are projects carried out which mean the realization and transfer of knowledge, techniques, and technology (something in this regard has been done only in the field of agroindustry). The basic reason for this is the fact that the planning organizations are not connected financially and technologically with economic areas which are interested in disposing of their products on the foreign market. Without this connection they are not, nor can they be, an exponent of producers, but appearing individually "from time to time" and at the same time maintaining buyer-seller relations, they cannot contribute in a more significant way to the disposal of goods through export by means of the performance of capital investment work in foreign countries. An "association" of planners and contractors would probably be the most acceptable solution to the problems connected to the financing of studies and the preplanning for investment undertakings for some of the developing countries (especially those whose needs are in accord with the strategy of our development).

Since studies, preplanning, and planning as a rule are the precursors to the export of materials, equipment, and technology of the countries who make these plans, it is the practice of the industrialized countries, who are far more successful than we are in the international market of capital investment work, to perform these jobs free of charge or with minimal compensation, or if the planning is to be paid for, then it is most often financed. This type of investment, of course, is returned many times over if the job is obtained.

Reasons for Lack of Coordination

This type of practice, which is quite worthwhile in other countries, is almost inapplicable in our country under the present circumstances. Planners are not able to enter into the development of studies and preplanning, and therefore not into the development of consulting and engineering work either (through which this type of job is actually carried out), first of all because the resources which are necessary for this are far greater than those which they possess, and in addition because of the fact that no one guarantees them that the product of this work will be accepted or paid for. No less of a problem in this regard is the fact that the development of consulting and engineering work also means a full insight into the production possibilities (and plans) of the domestic contractors and the producers of the equipment.

On the other hand, the contractors, if they pursue their own interests exclusively, are not willing to work according to domestic plans which mean the use of domestic equipment, construction machinery, and materials (or to finance their production), simply because of the fact that foreign producers provide prompter delivery of higher quality products at a lower price (along with servicing, more favorable credit conditions, and other benefits) than do domestic. The producers of equipment, again, are not prepared to share the risk of a joint excursion into the foreign market of capital investment work. It has been shown in former practice that in most cases they are not competitive enough with foreign firms, and that quite often they do not respond to the call of the contractors to offer their equipment (or materials), or that when they do offer it they give very short options causing a change in the agreed upon conditions depending on the conditions in the domestic market.

It is certainly not possible to increase the total impact of our appearance on the international market of capital investment work, or to overcome the problems with which this appearance is burdened, by measures which apply only to individual activities which participate in any sort of way in the export of goods and services through construction work. Taking on complex capital investment work in international bidding is objectively more and more dependent upon the existence of a strong and effective system in which those who perform the work and those who produce the cpaital investment and other equipment, the construction machinery, etc., are connected. Of course, the proper motive for the connection in such a system can only be the possibility that those who make up the system will realize a profit by these means. Therefore one can say that the former results of the export of construction work (as well as the other products exported by means of this) are first of all the expression of the immediate possibilities no only of the construction industry, but also of the whole economy. Because as long as the industry which accompanies construction in foreign countries realizes a greater profit placing their products on the domestic market than they would by exporting these products (that is, while there is no justification according to income for export), there will not be any more essential changes with respect to the latest results of our participation in the international market of capital investment work. Moreover, without the creation of more favorable conditions for the economy as a whole, one should expect a narrowing of the extent of the investment of the construction services themselves as well. Considering that contractors have had up to now (and still have) an interest (more or less independently) in being employed in foreign countries because they realize a profit, which, according to some data, is about 10 percent of the total value of the project they are working on, because they employ their working capacity, because they improve themselves in a personnel, technical and technological, and organizational sense, as well as in other ways, this might be a motivation for the contractors themselves to become involved with tying themselves in with the other participants in the construction of capital investment projects.

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